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SEQUENCE LISTING

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<120> COMPOSITIONS AND METHODS FOR TREATMENT AND DIAGNOSIS OF CHLAMYDIAL INFECTION

<130> 210121.469C4

<140> US/09/454,684
<141> 1999-12-03

<160> 310

<170> FastSEQ for Windows Version 3.0/4.0

<210> 1
<211> 481
<212> DNA
<213> Chlamydia trachomatis

<400> 1
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caaaataaga actctgcttt catgcagcct gtgaacgtat ccgctgattt agctgccatc 180
gttggtgcag gacctatgcc tcgcacagag atcattaaga aaatgtggga ttacattaag 240
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aaagtttttg gaactgaaaa acctatcgat atgttccaaa tgacaaaaat ggtttctcaa 360
cacatcatta aataaaatag aaattgactc acgtgttcct cgtctttaag atgaggaact 420
agttcattct ttttgttcgt ttttgtgggt attactgtat ctttaacaac tatcttagca 480
g 481

<210> 2
<211> 183
<212> DNA
<213> Chlamydia trachomatis

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aaggagaata gtcttcaaga tcctacaaac aaacgtaata tcaatcccga tgataaattg 120
gctaaagttt ttggaactga aaaacctatc gatatgttcc aaatgacaaa aatggtttct 180
caa 183

<210> 3
<211> 110
<212> DNA
<213> Chlamydia trachomatis

<400> 3
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cgctctttgg aactaatgct gctaccgagt caatcacaat cacatcgacc 110

<210> 4
<211> 555
<212> DNA
<213> Chlamydia trachomatis

<400> 4
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ttggaataga tattcctgcg aaaaagaaat taaaaataag tcttacatat atttatggaa 120
tagggccagc tctttctaaa gagattattg ctagattgca gttgaatccc gaagctagag 180
ctgcagagtt gactgaggaa gaggttggtc gactaaacgc tcttttacag tcggattacg 240
ttgttgaagg ggatttgcgc cgtcgtgtgc aatctgatat caaacgtctg attactatcc 300
atgcttatcg tggacaaaga catagacttt ctttgcctgt tcgtggtcag agaacaaaaa 360
caaattctcg cacgcgtaag ggtaaacgta aaactattgc aggtaagaag aaataataat 420
ttttaggaga gagtgttttg gttaaaaatc aagcgcaaaa aagaggcgta aaaagaaaac 480
aagtaaaaaa cattccttcg ggcgttgtcc atgttaaggc tacttttaat aatacaattg 540
taaccataac agacc 555

<210> 5
<211> 86
<212> PRT
<213> Chlamydia trachomatis

<400> 5
Met Ser Gln Asn Lys Asn Ser Ala Phe Met Gln Pro Val Asn Val Ser
1 5 10 15
Ala Asp Leu Ala Ala Ile Val Gly Ala Gly Pro Met Pro Arg Thr Glu
20 25 30
Ile Ile Lys Lys Met Trp Asp Tyr Ile Lys Glu Asn Ser Leu Gln Asp
35 40 45
Pro Thr Asn Lys Arg Asn Ile Asn Pro Asp Asp Lys Leu Ala Lys Val
50 55 60
Phe Gly Thr Glu Lys Pro Ile Asp Met Phe Gln Met Thr Lys Met Val
65 70 75 80
Ser Gln His Ile Ile Lys
85

<210> 6
<211> 61
<212> PRT
<213> Chlamydia trachomatis

<400> 6
Ile Val Gly Ala Gly Pro Met Pro Arg Thr Glu Ile Ile Lys Lys Met
1 5 10 15
Trp Asp Tyr Ile Lys Glu Asn Ser Leu Gln Asp Pro Thr Asn Lys Arg
20 25 30
Asn Ile Asn Pro Asp Asp Lys Leu Ala Lys Val Phe Gly Thr Glu Lys
35 40 45
Pro Ile Asp Met Phe Gln Met Thr Lys Met Val Ser Gln
50 55 60

<210> 7
<211> 36

<212> PRT
<213> Chlamyida trachomatis

<400> 7
Ala Ala Thr Ser Cys Glu Leu Ala Asn Gln His Gly His Leu Gln Phe
1 5 10 15
Pro Leu Leu Thr Arg Ser Leu Glu Leu Met Leu Leu Pro Ser Gln Ser
20 25 30
Gln Ser His Arg
35

<210> 8
<211> 18
<212> PRT
<213> Chlamydia trachomatis

<400> 8
Leu Arg His His Ala Ser Leu Gln Thr Asn Met Asp Ile Ser Asn Phe
1 5 10 15
Pro Phe

<210> 9
<211> 5
<212> PRT
<213> Chlamydia trachomatis

<400> 9
Leu Ala Leu Trp Asn
1 5

<210> 10
<211> 11
<212> PRT
<213> Chlamydia trachomatis

<400> 10
Cys Cys Tyr Arg Val Asn His Asn His Ile Asp
1 5 10

<210> 11
<211> 36
<212> PRT
<213> Chlamydia trachomatis

<400> 11
Val Asp Val Ile Val Ile Asp Ser Val Ala Ala Leu Val Pro Lys Ser
1 5 10 15
Glu Leu Glu Gly Glu Ile Gly Asp Val His Val Gly Leu Gln Ala Arg
20 25 30
Met Met Ser Gln
35

<210> 12
<211> 122
<212> PRT
<213> Chlamydia trachomatis

<400> 12
Met Pro Arg Ile Ile Gly Ile Asp Ile Pro Ala Lys Lys Lys Leu Lys
1 5 10 15
Ile Ser Leu Thr Tyr Ile Tyr Gly Ile Gly Pro Ala Leu Ser Lys Glu
20 25 30
Ile Ile Ala Arg Leu Gln Leu Asn Pro Glu Ala Arg Ala Ala Glu Leu
35 40 45
Thr Glu Glu Glu Val Gly Arg Leu Asn Ala Leu Leu Gln Ser Asp Tyr
50 55 60
Val Val Glu Gly Asp Leu Arg Arg Arg Val Gln Ser Asp Ile Lys Arg
65 70 75 80
Leu Ile Thr Ile His Ala Tyr Arg Gly Gln Arg His Arg Leu Ser Leu
85 90 95
Pro Val Arg Gly Gln Arg Thr Lys Thr Asn Ser Arg Thr Arg Lys Gly
100 105 110
Lys Arg Lys Thr Ile Ala Gly Lys Lys Lys
115 120

<210> 13
<211> 20
<212> PRT
<213> Chlamydia trachomatis

<400> 13
Asp Pro Thr Asn Lys Arg Asn Ile Asn Pro Asp Asp Lys Leu Ala Lys
1 5 10 15
Val Phe Gly Thr
20

<210> 14
<211> 20
<212> PRT
<213> Chlamydia trachomatis

<400> 14
Asp Asp Lys Leu Ala Lys Val Phe Gly Thr Glu Lys Pro Ile Asp Met
1 5 10 15
Phe Gln Met Thr
20

<210> 15
<211> 161
<212> DNA
<213> Chlymidia trachomatis

<400> 15
atctttgtgt gtctcataag cgcagagcgg ctgcggctgt ctgtagcttc atcggaggaa 60
ttacctacct cgcgacattc ggagctatcc gtccgattct gtttgtcaac aaaatgctgg 120
cgcaaccgtt tctttcttcc caaactaaag caaatatggg a 161

<210> 16
<211> 897
<212> DNA
<213> Chlymidia trachomatis

<400> 16

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acacagccca acaataaaat ggcaagggta gtaaataaga cgaagggaat ggataagact     120
attaaggttg ccaagtctgc tgccgaattg accgcaaata ttttggaaca agctggaggc     180
gcgggctctt ccgcacacat tacagcttcc caagtgtcca aaggattagg ggatgcgaga     240
actgttgtcg ctttagggaa tgcctttaac ggagcgttgc caggaacagt tcaaagtgcg     300
caaagcttct tctctcacat gaaagctgct agtcagaaaa cgcaagaagg ggatgagggg     360
ctcacagcag atctttgtgt gtctcataag cgcagagcgg ctgcggctgt ctgtagcatc     420
atcggaggaa ttacctacct cgcgacattc ggagctatcc gtccgattct gtttgtcaac     480
aaaatgctgg caaaaccgtt tctttcttcc caaactaaag caaatatggg atcttctgtt     540
agctatatta tggcggctaa ccatgcagcg tctgtggtgg gtgctggact cgctatcagt     600
gcggaaagag cagattgcga agcccgctgc gctcgtattg cgagagaaga gtcgttactc     660
gaagtgccgg gagaggaaaa tgcttgcgag aagaaagtcg ctggagagaa agccaagacg     720
ttcacgcgca tcaagtatgc actcctcact atgctcgaga agtttttgga atgcgttgcc     780
gacgttttca aattggtgcc gctgcctatt acaatgggta ttcgtgcgat tgtggctgct     840
ggatgtacgt tcacttctgc aattattgga ttgtgcactt tctgcgccag agcataa        897
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<210> 17
<211> 298
<212> PRT
<213> Chlamydia trachomatis

<400> 17

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Met Ala Ser Ile Cys Gly Arg Leu Gly Ser Gly Thr Gly Asn Ala Leu
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Lys Ala Phe Phe Thr Gln Pro Asn Asn Lys Met Ala Arg Val Val Asn
            20                  25                  30
Lys Thr Lys Gly Met Asp Lys Thr Ile Lys Val Ala Lys Ser Ala Ala
        35                  40                  45
Glu Leu Thr Ala Asn Ile Leu Glu Gln Ala Gly Gly Ala Gly Ser Ser
    50                  55                  60
Ala His Ile Thr Ala Ser Gln Val Ser Lys Gly Leu Gly Asp Ala Arg
65                  70                  75                  80
Thr Val Val Ala Leu Gly Asn Ala Phe Asn Gly Ala Leu Pro Gly Thr
                85                  90                  95
Val Gln Ser Ala Gln Ser Phe Phe Ser His Met Lys Ala Ala Ser Gln
            100                 105                 110
Lys Thr Gln Glu Gly Asp Glu Gly Leu Thr Ala Asp Leu Cys Val Ser
        115                 120                 125
His Lys Arg Arg Ala Ala Ala Ala Val Cys Ser Ile Ile Gly Gly Ile
    130                 135                 140
Thr Tyr Leu Ala Thr Phe Gly Ala Ile Arg Pro Ile Leu Phe Val Asn
145                 150                 155                 160
Lys Met Leu Ala Lys Pro Phe Leu Ser Ser Gln Thr Lys Ala Asn Met
                165                 170                 175
Gly Ser Ser Val Ser Tyr Ile Met Ala Ala Asn His Ala Ala Ser Val
            180                 185                 190
Val Gly Ala Gly Leu Ala Ile Ser Ala Glu Arg Ala Asp Cys Glu Ala
        195                 200                 205
Arg Cys Ala Arg Ile Ala Arg Glu Glu Ser Leu Leu Glu Val Pro Gly
    210                 215                 220
Glu Glu Asn Ala Cys Glu Lys Lys Val Ala Gly Glu Lys Ala Lys Thr
225                 230                 235                 240
Phe Thr Arg Ile Lys Tyr Ala Leu Leu Thr Met Leu Glu Lys Phe Leu
                245                 250                 255
Glu Cys Val Ala Asp Val Phe Lys Leu Val Pro Leu Pro Ile Thr Met
            260                 265                 270
Gly Ile Arg Ala Ile Val Ala Ala Gly Cys Thr Phe Thr Ser Ala Ile
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```
        275                 280                 285
Ile Gly Leu Cys Thr Phe Cys Ala Arg Ala
    290                 295
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<210> 18
<211> 18
<212> PRT
<213> Chlamydia trachomatis

<400> 18

```
Arg Ala Ala Ala Ala Ala Ala Val Cys Ser Phe Ile Gly Gly Ile Thr
 1               5                  10                  15
Tyr Leu
```

<210> 19
<211> 18
<212> PRT
<213> Chlamydia trachomatis

<400> 19

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Cys Ser Phe Ile Gly Gly Ile Thr Tyr Leu Ala Thr Phe Gly Ala Ile
 1               5                  10                  15
Arg Pro
```

<210> 20
<211> 216
<212> PRT
<213> Chlamydia trachomatis

<400> 20

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 1               5                  10                  15
Leu Arg Leu Ser Val Ala Ser Ser Glu Glu Leu Pro Thr Ser Arg His
            20                  25                  30
Ser Glu Leu Ser Val Arg Phe Cys Leu Ser Thr Lys Cys Trp Gln Asn
        35                  40                  45
Arg Phe Phe Leu Pro Lys Leu Lys Gln Ile Trp Asp Leu Leu Leu Ala
    50                  55                  60
Ile Leu Trp Arg Leu Thr Met Gln Arg Leu Trp Trp Val Leu Asp Ser
65                  70                  75                  80
Leu Ser Val Arg Lys Glu Gln Ile Ala Lys Pro Ala Ala Leu Val Leu
                85                  90                  95
Arg Glu Lys Ser Arg Tyr Ser Lys Cys Arg Glu Arg Lys Met Leu Ala
            100                 105                 110
Arg Arg Lys Ser Leu Glu Arg Lys Pro Arg Arg Ser Arg Ala Ser Ser
        115                 120                 125
Met His Ser Ser Leu Cys Ser Arg Ser Phe Trp Asn Ala Leu Pro Thr
    130                 135                 140
Phe Ser Asn Trp Cys Arg Cys Leu Leu Gln Trp Val Phe Val Arg Leu
145                 150                 155                 160
Trp Leu Leu Asp Val Arg Ser Leu Leu Gln Leu Leu Asp Cys Ala Leu
                165                 170                 175
Ser Ala Pro Glu His Lys Gly Phe Phe Lys Phe Leu Lys Lys Lys Ala
            180                 185                 190
Val Ser Lys Lys Lys Gln Pro Phe Leu Ser Thr Lys Cys Leu Ala Phe
```

195 200 205
Leu Ile Val Lys Ile Val Phe Leu
210 215

<210> 21
<211> 1256
<212> DNA
<213> Chlamydia trachomatis

<400> 21
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caagctctca aatccttgct ttgaataatc cagatatttc aaaaaccatg ttcgataaat 180
tcacccgaca aggactccgt ttcgtactag aagcctctgt atcaaatatt gaggatatag 240
gagatcgcgt tcggttaact atcaatggga atgtcgaaga atacgattac gttctcgtat 300
ctataggacg ccgtttgaat acagaaaata ttggcttgga taaagctggt gttatttgtg 360
atgaacgcgg agtcatccct accgatgcca caatgcgcac aaacgtacct aacatttatg 420
ctattggaga tatcacagga aaatggcaac ttgcccatgt agcttctcat caaggaatca 480
ttgcagcacg gaatataggt ggccataaag aggaaatcga ttactctgct gtcccttctg 540
tgatctttac cttccctgaa gtcgcttcag taggcctctc cccaacagca gctcaacaac 600
atctccttct tcgcttactt tttctgaaaa atttgataca gaagaagaat tcctcgcaca 660
cttgcgagga ggagggcgtc tggaagacca gttgaattta gctaagtttt ctgagcgttt 720
tgattctttg cgagaattat ccgctaagct tggttacgat agcgatggag agactgggga 780
tttcttcaac gaggagtacg acgacgaaga agaggaaatc aaaccgaaga aaactacgaa 840
acgtggacgt aagaagagcc gttcataagc cttgctttta aggtttggta gttttacttc 900
tctaaaatcc aaatggttgc tgtgccaaaa agtagtttgc gtttccggat agggcgtaaa 960
tgcgctgcat gaaagattgc ttcgagagcg gcatcgcgtg ggagatcccg gatactttct 1020
ttcagatacg aataagcata gctgttccca gaataaaaac ggccgacgct aggaacaaca 1080
agatttagat agagcttgtg tagcaggtaa actgggttat atgttgctgg gcgtgttagt 1140
tctagaatac ccaagtgtcc tccaggttgt aatactcgat acacttccct aagagcctct 1200
aatggatagg ataagttccg taatccatag gccatagaag ctaaacgaaa cgtatt 1256

<210> 22
<211> 601
<212> DNA
<213> Chlamydia trachomatis

<400> 22
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tcggttgcga attcgcttcc ttattccata cgttaggctc cgaagtttct gtgatcgaag 120
caagctctca aatccttgct ttgaataatc cagatatttc aaaaaccatg ttcgataaat 180
tcacccgaca aggactccgt ttcgtactag aagcctctgt atcaaatatt gaggatatag 240
gagatcgcgt tcggttaact atcaatggga atgtcgaaga atacgattac gttctcgtat 300
ctataggacg ccgtttgaat acagaaaata ttggcttgga taaagctggt gttatttgtg 360
atgaacgcgg agtcatccct accgatgcca caatgcgcac aaacgtacct aacatttatg 420
ctattggaga tatcacagga aaatggcaac ttgcccatgt agcttctcat caaggaatca 480
ttgcagcacg gaatataggt ggccataaag aggaaatcga ttactctgct gtcccttctg 540
tgatctttac cttccctgaa gtcgcttcag taggcctctc cccaacagca gctcaacaac 600
a 601

<210> 23
<211> 270
<212> DNA
<213> Chlamydia trachomatis

<400> 23
acatctcctt cttcgcttac tttttctgaa aaatttgata cagaagaaga attcctcgca 60

cacttgcgag gaggagggcg tctggaagac cagttgaatt tagctaagtt ttctgagcgt 120
tttgattctt tgcgagaatt atccgctaag cttggttacg atagcgatgg agagactggg 180
gatttcttca acgaggagta cgacgacgaa gaagaggaaa tcaaaccgaa gaaaactacg 240
aaacgtggac gtaagaagag ccgttcataa 270

<210> 24
<211> 363
<212> DNA
<213> Chlamydia trachomatis

<400> 24
ttacttctct aaaatccaaa tggttgctgt gccaaaaagt agtttgcgtt tccggatagg 60
gcgtaaatgc gctgcatgaa agattgcttc gagagcggca tcgcgtggga gatcccggat 120
actttctttc agatacgaat aagcatagct gttcccagaa taaaaacggc cgacgctagg 180
aacaacaaga tttagataga gcttgtgtag caggtaaact gggttatatg ttgctgggcg 240
tgttagttct agaataccca agtgtcctcc aggttgtaat actcgataca cttccctaag 300
agcctctaat ggataggata agttccgtaa tccataggcc atagaagcta aacgaaacgt 360
att 363

<210> 25
<211> 696
<212> DNA
<213> Chlamydia trachomatis

<400> 25
gctcgtgccg gcacgagcaa agaaatccct caaaaaatgg ccattattgg cggtggtgtg 60
atcggttgcg aattcgcttc cttattccat acgttaggct ccgaagtttc tgtgatcgaa 120
gcaagctctc aaatccttgc tttgaataat ccagatattt caaaaaccat gttcgataaa 180
ttcacccgac aaggactccg tttcgtacta gaagcctctg tatcaaatat tgaggatata 240
ggagatcgcg ttcggttaac tatcaatggg aatgtcgaag aatacgatta cgttctcgta 300
tctataggac gccgtttgaa tacagaaaat attggcttgg ataaagctgg tgttatttgt 360
gatgaacgcg gagtcatccc taccgatgcc acaatgcgca caaacgtacc taacatttat 420
gctattggag atatcacagg aaaatggcaa cttgcccatg tagcttctca tcaaggaatc 480
attgcagcac ggaatatagg tggccataaa gaggaaatcg attactctgc tgtcccttct 540
gtgatcttta ccttccctga agtcgcttca gtaggcctct ccccaacagc agctcaacaa 600
catctccttc ttcgcttact ttttctgaaa aatttgatac agaagaagaa ttcctcgcac 660
acttgcgagg aggagggcgt ctggaagacc agttga 696

<210> 26
<211> 231
<212> PRT
<213> Chlamydia trachomatis

<400> 26
Ala Arg Ala Gly Thr Ser Lys Glu Ile Pro Gln Lys Met Ala Ile Ile
1 5 10 15
Gly Gly Gly Val Ile Gly Cys Glu Phe Ala Ser Leu Phe His Thr Leu
20 25 30
Gly Ser Glu Val Ser Val Ile Glu Ala Ser Ser Gln Ile Leu Ala Leu
35 40 45
Asn Asn Pro Asp Ile Ser Lys Thr Met Phe Asp Lys Phe Thr Arg Gln
50 55 60
Gly Leu Arg Phe Val Leu Glu Ala Ser Val Ser Asn Ile Glu Asp Ile
65 70 75 80
Gly Asp Arg Val Arg Leu Thr Ile Asn Gly Asn Val Glu Glu Tyr Asp
85 90 95
Tyr Val Leu Val Ser Ile Gly Arg Arg Leu Asn Thr Glu Asn Ile Gly

```
            100                 105                 110
Leu Asp Lys Ala Gly Val Ile Cys Asp Glu Arg Gly Val Ile Pro Thr
        115                 120                 125
Asp Ala Thr Met Arg Thr Asn Val Pro Asn Ile Tyr Ala Ile Gly Asp
    130                 135                 140
Ile Thr Gly Lys Trp Gln Leu Ala His Val Ala Ser His Gln Gly Ile
145                 150                 155                 160
Ile Ala Ala Arg Asn Ile Gly Gly His Lys Glu Glu Ile Asp Tyr Ser
                165                 170                 175
Ala Val Pro Ser Val Ile Phe Thr Phe Pro Glu Val Ala Ser Val Gly
            180                 185                 190
Leu Ser Pro Thr Ala Ala Gln Gln His Leu Leu Leu Arg Leu Leu Phe
        195                 200                 205
Leu Lys Asn Leu Ile Gln Lys Lys Asn Ser Ser His Thr Cys Glu Glu
    210                 215                 220
Glu Gly Val Trp Lys Thr Ser
225                 230
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<210> 27
<211> 264
<212> DNA
<213> Chlamydia pneumoniae

<400> 27

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atgagtcaaa aaaataaaaa ctctgctttt atgcatcccg tgaatatttc cacagattta      60
gcagttatag ttggcaaggg acctatgccc agaaccgaaa ttgtaaagaa agtttgggaa     120
tacattaaaa aacacaactg tcaggatcaa aaaaataaac gtaatatcct tcccgatgcg     180
aatcttgcca aagtctttgg ctctagtgat cctatcgaca tgttccaaat gaccaaagcc     240
ctttccaaac atattgtaaa ataa                                           264
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<210> 28
<211> 87
<212> PRT
<213> Chlamydia pneumoniae

<400> 28

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Met Ser Gln Lys Asn Lys Asn Ser Ala Phe Met His Pro Val Asn Ile
 1               5                  10                  15
Ser Thr Asp Leu Ala Val Ile Val Gly Lys Gly Pro Met Pro Arg Thr
            20                  25                  30
Glu Ile Val Lys Lys Val Trp Glu Tyr Ile Lys Lys His Asn Cys Gln
        35                  40                  45
Asp Gln Lys Asn Lys Arg Asn Ile Leu Pro Asp Ala Asn Leu Ala Lys
    50                  55                  60
Val Phe Gly Ser Ser Asp Pro Ile Asp Met Phe Gln Met Thr Lys Ala
65                  70                  75                  80
Leu Ser Lys His Ile Val Lys
                85
```

<210> 29
<211> 369
<212> DNA
<213> Chlamydia pneumoniae

<400> 29

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atgccacgca tcattggaat tgatattcct gcaaagaaaa agttaaaaat aagtctgaca      60
tatatttatg gaataggatc agctcgttct gatgaaatca ttaaaaagtt gaagttagat     120
```

```
cctgaggcaa gagcctctga attaactgaa gaagaagtag gacgactgaa ctctctgcta     180
caatcagaat ataccgtaga aggggatttg cgacgtcgtg ttcaatcgga tatcaaaaga     240
ttgatcgcca tccattctta tcgaggtcag agacatagac tttctttacc agtaagagga     300
caacgtacaa aaactaattc tcgtactcga aaaggtaaaa gaaaaacagt cgcaggtaag     360
aagaaataa                                                             369
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<210> 30
<211> 122
<212> PRT
<213> Chlamydia pneumoniae

<400> 30

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Met Pro Arg Ile Ile Gly Ile Asp Ile Pro Ala Lys Lys Lys Leu Lys
 1               5                  10                  15
Ile Ser Leu Thr Tyr Ile Tyr Gly Ile Gly Ser Ala Arg Ser Asp Glu
            20                  25                  30
Ile Ile Lys Lys Leu Lys Leu Asp Pro Glu Ala Arg Ala Ser Glu Leu
        35                  40                  45
Thr Glu Glu Glu Val Gly Arg Leu Asn Ser Leu Leu Gln Ser Glu Tyr
    50                  55                  60
Thr Val Glu Gly Asp Leu Arg Arg Arg Val Gln Ser Asp Ile Lys Arg
65                  70                  75                  80
Leu Ile Ala Ile His Ser Tyr Arg Gly Gln Arg His Arg Leu Ser Leu
                85                  90                  95
Pro Val Arg Gly Gln Arg Thr Lys Thr Asn Ser Arg Thr Arg Lys Gly
            100                 105                 110
Lys Arg Lys Thr Val Ala Gly Lys Lys Lys
        115                 120
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<210> 31
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> Made in the lab

<400> 31

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Cys Ser Phe Ile Gly Gly Ile Thr Tyr Leu
 1               5                  10
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<210> 32
<211> 53
<212> PRT
<213> Chlamydia trachomatis

<400> 32

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Leu Cys Val Ser His Lys Arg Arg Ala Ala Ala Ala Val Cys Ser Phe
 1               5                  10                  15
Ile Gly Gly Ile Thr Tyr Leu Ala Thr Phe Gly Ala Ile Arg Pro Ile
            20                  25                  30
Leu Phe Val Asn Lys Met Leu Ala Gln Pro Phe Leu Ser Ser Gln Thr
        35                  40                  45
Lys Ala Asn Met Gly
    50
```

<210> 33

<211> 161
<212> DNA
<213> Chlamydia trachomatis

<400> 33
atctttgtgt gtctcataag cgcagagcgg ctgcggctgt ctgtagcatc atcggaggaa 60
ttacctacct cgcgacattc ggagctatcc gtccgattct gtttgtcaac aaaatgctgg 120
caaaaccgtt tctttcttcc caaactaaag caaatatggg a 161

<210> 34
<211> 53
<212> PRT
<213> Chlamydia trachomatis

<400> 34
Leu Cys Val Ser His Lys Arg Arg Ala Ala Ala Ala Val Cys Ser Ile
1 5 10 15
Ile Gly Gly Ile Thr Tyr Leu Ala Thr Phe Gly Ala Ile Arg Pro Ile
20 25 30
Leu Phe Val Asn Lys Met Leu Ala Lys Pro Phe Leu Ser Ser Gln Thr
35 40 45
Lys Ala Asn Met Gly
50

<210> 35
<211> 55
<212> DNA
<213> Chlamydia pneumoniae

<400> 35
gatatacata tgcatcacca tcaccatcac atgagtcaaa aaaaataaaa actct 55

<210> 36
<211> 33
<212> DNA
<213> Chlamydia pneumoniae

<400> 36
ctcgaggaat tcttatttta caatatgttt gga 33

<210> 37
<211> 53
<212> DNA
<213> Chlamydia pneumoniae

<400> 37
gatatacata tgcatcacca tcaccatcac atgccacgca tcattggaat gat 53

<210> 38
<211> 30
<212> DNA
<213> Chlamydia pneumoniae

<400> 38
ctcgaggaat tcttatttct tcttacctgc 30

<210> 39
<211> 16
<212> PRT
<213> Artificial Sequence

<220>
<223> Made in the lab

<400> 39
Lys Arg Asn Ile Asn Pro Asp Asp Lys Leu Ala Lys Val Phe Gly Thr
1 5 10 15

<210> 40
<211> 16
<212> PRT
<213> Artificial Sequence

<220>
<223> made in the lab

<400> 40
Lys Arg Asn Ile Leu Pro Asp Ala Asn Leu Ala Lys Val Phe Gly Ser
1 5 10 15

<210> 41
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> made in the lab

<400> 41
Lys Glu Tyr Ile Asn Gly Asp Lys Tyr Phe Gln Gln Ile Phe Asp
1 5 10 15

<210> 42
<211> 16
<212> PRT
<213> Artificial Sequence

<220>
<223> made in the lab

<400> 42
Lys Lys Ile Ile Ile Pro Asp Ser Lys Leu Gln Gly Val Ile Gly Ala
1 5 10 15

<210> 43
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> made in the lab

<400> 43

Lys Lys Leu Leu Val Pro Asp Asn Asn Leu Ala Thr Ile Ile Gly
1 5 10 15

<210> 44
<211> 509
<212> DNA
<213> Chlamydia

<400> 44
ggagctcgaa ttcggcacga gagtgcctat tgttttgcag gctttgtctg atgatagcga 60
taccgtacgt gagattgctg tacaagtagc tgttatgtat ggttctagtt gcttactgcg 120
cgccgtgggc gatttagcga aaaatgattc ttctattcaa gtacgcatca ctgcttatcg 180
tgctgcagcc gtgttggaga tacaagatct tgtgcctcat ttacgagttg tagtccaaaa 240
tacacaatta gatggaacgg aaagaagaga agcttggaga tctttatgtg ttcttactcg 300
gcctcatagt ggtgtattaa ctggcataga tcaagcttta atgacctgtg agatgttaaa 360
ggaatatcct gaaaagtgta cggaagaaca gattcgtaca ttattggctg cagatcatcc 420
agaagtgcag gtagctactt tacagatcat tctgagagga ggtagagtat tccggtcatc 480
ttctataatg gaatcggttc tcgtgccgg 509

<210> 45
<211> 481
<212> DNA
<213> Chlamydia

<220>
<221> unsure
<222> (23)
<223> n=A,T,C or G

<400> 45
gatccgaatt cggcacgagg cantatttac tcccaacatt acggttccaa ataagcgata 60
aggtcttcta ataaggaagt taatgtaaga ggctttttta ttgcttttcg taaggtagta 120
ttgcaaccgc acgcgattga atgatacgca agccatttcc atcatggaaa agaacccttg 180
gacaaaaata caaaggaggt tcactcctaa ccagaaaaag ggagagttag tttccatggg 240
ttttccttat atacacccgt ttcacacaat taggagccgc gtctagtatt tggaatacaa 300
attgtcccca agcgaatttt gttcctgttt cagggatttc tcctaattgt tctgtcagcc 360
atccgcctat ggtaacgcaa ttagctgtag taggaagatc aactccaaac aggtcataga 420
aatcagaaag ctcataggtg cctgcagcaa taacaacatt cttgtctgag tgagcgaatt 480
g 481

<210> 46
<211> 427
<212> DNA
<213> Chlamydia

<220>
<221> unsure
<222> (20)
<223> n=A,T,C or G

<400> 46
gatccgaatt cggcacgagn tttttcctgt tttttcttag tttttagtgt tcccggagca 60
ataacacaga tcaaagaacg gccattcagt ttaggctctg actcaacaaa acctatgtcc 120
tctaagccct gacacattct ttgaacaacc ttatgcccgt gttcgggata agccaactct 180
cgccccccgaa acatacaaga aacctttact ttatttcctt tctcaataaa ggctctagct 240
tgctttgctt tcgtaagaaa gtcgttatca tcgatattag gcttaagctt aacctctttg 300
atacgcactt ggtgctgtgc tttcttacta tctttttctt ttttagttat gtcgtaacga 360

tacttcccgt agtccatgat tttgcacaca ggaggctctg agtttgaagc aacctcgtgc 420
cgaattc 427

<210> 47
<211> 600
<212> DNA
<213> Chlamydia

<220>
<221> unsure
<222> (522)
<223> n=A,T,C or G

<400> 47
gatccgaatt cggcacgaga tgcttctatt acaattggtt tggatgcgga aaaagcttac 60
cagcttattc tagaaaagtt gggagatcaa attcttggtg gaattgctga tactattgtt 120
gatagtacag tccaagatat tttagacaaa atcacaacag acccttctct aggtttgttg 180
aaagctttta acaactttcc aatcactaat aaaattcaat gcaacgggtt attcactccc 240
aggaacattg aaactttatt aggaggaact gaaataggaa aattcacagt cacacccaaa 300
agctctggga gcatgttctt agtctcagca gatattattg catcaagaat ggaaggcggc 360
gttgttctag ctttggtacg agaaggtgat tctaagccct acgcgattag ttatggatac 420
tcatcaggcg ttcctaattt atgtagtcta agaaccagaa ttattaatac aggattgact 480
ccgacaacgt attcattacg tgtaggcggt ttagaaagcg gngtggtatg ggttaatgcc 540
ctttctaatg gcaatgatat tttaggaata acaaatcttc taatgtatct tttttggagg 600

<210> 48
<211> 600
<212> DNA
<213> Chlamydia

<400> 48
ggagctcgaa ttcggcacga gctctatgaa tatccaattc tctaaactgt tcggataaaa 60
atgatgcagg aattaggtcc acactatctt tttttgtttc gcaaatgatt gattttaaat 120
cgtttgatgt gtatactatg tcgtgtaagc ctttttggtt acttctgaca ctagccccca 180
atccagaaga taaattggat tgcgggtcta ggtcagcaag taacactttt ttccctaaaa 240
attgggccaa gttgcatccc acgtttagag aaagtgttgt ttttccagtt cctcccttaa 300
aagagcaaaa aactaaggtg tgcaaatcaa ctccaacgtt agagtaagtt atctattcag 360
ccttggaaaa catgtctttt ctagacaaga taagcataat caaagccttt tttagcttta 420
aactgttatc ctctaatttt tcaagaacag gagagtctgg gaataatcct aaagagtttt 480
ctatttgttg aagcagtcct agaattagtg agacactttt atggtagagt tctaagggag 540
aatttaagaa agttactttt tccttgttta ctcgtatttt taggtctaat tcggggaaat 600

<210> 49
<211> 600
<212> DNA
<213> Chlamydia

<400> 49
gatccgaatt cggcacgaga tgcttctatt acaattggtt tggatgcgga aaaagcttac 60
cagcttattc tagaaaagtt gggagatcaa attcttggtg gaattgctga tactattgtt 120
gatagtacag tccaagatat tttagacaaa atcacaacag acccttctct aggtttgttg 180
aaagctttta acaactttcc aatcactaat aaaattcaat gcaacgggtt attcactccc 240
aggaacattg aaactttatt aggaggaact gaaataggaa aattcacagt cacacccaaa 300
agctctggga gcatgttctt agtctcagca gatattattg catcaagaat ggaaggcggc 360
gttgttctag ctttggtacg agaaggtgat tctaagccct acgcgattag ttatggatac 420
tcatcaggcg ttcctaattt atgtagtcta agaaccagaa ttattaatac aggattgact 480
ccgacaacgt attcattacg tgtaggcggt ttagaaagcg gtgtggtatg ggttaatgcc 540

ctttctaatg gcaatgatat tttaggaata acaaatactt ctaatgtatc ttttttggag 600

<210> 50
<211> 406
<212> DNA
<213> Chlamydia

<400> 50
gatccgaatt cggcacgagt tcttagcttg cttaattacg taattaacca aactaaaggg 60
gctatcaaat agcttattca gtctttcatt agttaaacga tcttttctag ccatgactca 120
tcctatgttc ttcagctata aaaatacttc ttaaaacttg atatgctgta atcaaatcat 180
cattaaccac aacataatca aattcgctag cggcagcaat ttcgacagcg ctatgctcta 240
atctttcttt cttctggaaa tctttctctg aatcccgagc attcaaacgg cgctcaagtt 300
cttcttgaga gggagcttga ataaaaatgt gactgccggc atttgcttct tcagagccaa 360
agctccttgt acatcaatca cggctatgca gtctcgtgcc gaattc 406

<210> 51
<211> 602
<212> DNA
<213> Chlamydia

<400> 51
gatccgaatt cggcacgaga tattttagac aaaatcacaa cagacccttc tctaggtttg 60
ttgaaagctt ttaacaactt tccaatcact aataaaattc aatgcaacgg gttattcact 120
cccaggaaca ttgaaacttt attaggagga actgaaatag gaaaattcac agtcacaccc 180
aaaagctctg ggagcatgtt cttagtctca gcagatatta ttgcatcaag aatggaaggc 240
ggcgttgttc tagctttggt acgagaaggt gattctaagc cctacgcgat tagttatgga 300
tactcatcag gcgttcctaa tttatgtagt ctaagaacca gaattattaa tacaggattg 360
actccgacaa cgtattcatt acgtgtaggc ggtttagaaa gcggtgtggt atgggttaat 420
gccctttcta atggcaatga tattttagga ataacaaata cttctaatgt atctttttttg 480
gaggtaatac ctcaaacaaa cgcttaaaca atttttattg gatttttctt ataggtttta 540
tatttagaga aaaaagttcg aattacgggg tttgttatgc aaaataaact cgtgccgaat 600
tc 602

<210> 52
<211> 145
<212> DNA
<213> Chlamydia

<400> 52
gatccgaatt cggcacgagc tcgtgccgat gtgttcaaca gcatccatag gatgggcagt 60
caaatatact ccaagtaatt ctttttctct tttcaacaac tccttaggag agcgttggat 120
aacattttca gctcgtgccg aattc 145

<210> 53
<211> 450
<212> DNA
<213> Chlamydia

<400> 53
gatccgaatt cggcacgagg taatcggcac cgcactgctg acactcatct cctcgagctc 60
gatcaaaccc acacttggga caagtaccta caacataacg gtccgctaaa aacttccctt 120
cttcctcaga atacagctgt tcggtcacct gattctctac cagtccgcgt tcctgcaagt 180
ttcgatagaa atcttgcaca atagcaggat gataagcgtt cgtagttctg gaaaagaaat 240
ctacagaaat tcccaatttc ttgaaggtat ctttatgaag cttatgatac atgtcgacat 300
attcttgata ccccatgcct gccaactctg cattaagggt aattgcgatt ccgtattcat 360
cagaaccaca aatatacaaa acctctttgc cttgtagtct ctgaaaacgc gcataaacat 420

ctgcaggcaa ataagcctcg tgccgaattc 450

<210> 54
<211> 716
<212> DNA
<213> Chlamydia

<400> 54
gatcgaaatt cggcacgagc ggcacgagtt ttctgatagc gatttacaat cctttattca 60
acttttgcct agagaggcac actatactaa gaagtttctt gggtgtgtgg cacagtcctg 120
tcgtcagggg attctgctag aggggtaggg gaaaaaaccc ttattactat gaccatgcgc 180
atgtggaatt acattccata gactttcgca tcattcccaa catttacaca gctctacacc 240
tcttaagaag aggtgacgtg gattgggtgg ggcagccttg gcaccaaggg attccttttg 300
agcttcggac tacctctgct ctctacaccc attaccctgt agatggcaca ttctggctta 360
ttcttaatcc caaagatcct gtactttcct ctctatctaa tcgtcagcga ttgattgctg 420
ccatccaaaa ggaaaaactg gtgaagcaag ctttaggaac acaatatcga gtagctgaaa 480
gctctccatc tccagaggga atcatagctc atcaagaagc ttctactcct tttcctggga 540
aaattacttt gatatatccc aataatatta cgcgctgtca gcgtttggcc gaggtatcca 600
aaaaatgatc gacaaggagc acgctaaatt tgtacatacc ccaaaatcaa tcagccatct 660
aggcaaatgg aatatcaaag taaacagtat acaactgggg atctcgtgcc gaattc 716

<210> 55
<211> 463
<212> DNA
<213> Chlamydia trachomatis

<400> 55
tctcaaatcc ttgctttgaa taatccagat atttcaaaaa ccatgttcga taaattcacc 60
cgacaaggac tccgtttcgt actagaagcc tctgtatcaa atattgagga tataggagat 120
cgcgttcggt taactatcaa tgggaatgtc gaagaatacg attacgttct cgtatctata 180
ggacgccgtt tgaatacaga aaatattggc ttggataaag ctggtgttat ttgtgatgaa 240
cgcggagtca tccctaccga tgccacaatg cgcacaaacg tacctaacat ttatgctatt 300
ggagatatca caggaaaatg gcaacttgcc catgtagctt ctcatcaagg aatcattgca 360
gcacggaata taggtggcca taaagaggaa atcgattact ctgctgtccc ttctgtgatc 420
tttaccttcc ctgaagtcgc ttcagtaggc ctctccccaa cag 463

<210> 56
<211> 829
<212> DNA
<213> Chlamydia trachomatis

<400> 56
gtactatggg atcattagtt ggaagacagg ctccggattt ttctggtaaa gccgttgttt 60
gtggagaaga gaaagaaatc tctctagcag actttcgtgg taagtatgta gtgctcttct 120
tttatcctaa agattttacc tatgtttgtc ctacagaatt acatgctttt caagatagat 180
tggtagattt tgaagagcat ggtgcagtcg tccttggttg ctccgttgac gacattgaga 240
cacattctcg ttggctcact gtagcgagag atgcaggagg gatagaggga acagaatatc 300
ctctgttagc agacccctct tttaaaatat cagaagcttt tggtgttttg aatcctgaag 360
gatcgctcgc tttaagagct actttcctta tcgataaaca tggggttatt cgtcatgcgg 420
ttatcaatga tcttccttta gggcgttcca ttgacgagga attgcgtatt ttagattcat 480
tgatcttctt tgagaaccac ggaatggttt gtccagctaa ctggcgttct ggagagcgtg 540
gaatggtgcc ttctgaagag ggattaaaag aatacttcca gacgatggat taagcatctt 600
tgaaagtaag aaagtcgtac agatcttgat ctgaaaagag aagaaggctt tttaattttc 660
tgcagagagc cagcgaggct tcaataatgt tgaagtctcc gacaccaggc aatgctaagg 720
cgacgatatt agttagtgaa gtctgagtat taaggaaatg aaggccaaag aaatagctat 780
caataaagaa gccttcttcc ttgactctaa agaatagtat gtcgtatcc 829

<210> 57
<211> 1537
<212> DNA
<213> Chlamydia trachomatis

<400> 57
acatcaagaa atagcggact cgcctttagt gaaaaaagct gaggagcaga ttaatcaagc 60
acaacaagat attcaaacga tcacacctag tggtttggat attcctatcg ttggtccgag 120
tgggtcagct gcttccgcag gaagtgcggc aggagcgttg aaatcctcta acaattcagg 180
aagaatttcc ttgttgcttg atgatgtaga caatgaaatg gcagcgattg caatgcaagg 240
ttttcgatct atgatcgaac aatttaatgt aaacaatcct gcaacagcta aagagctaca 300
agctatggag gctcagctga ctgcgatgtc agatcaactg gttggtgcgg atggcgagct 360
cccagccgaa atacaagcaa tcaaagatgc tcttgcgcaa gctttgaaac aaccatcagc 420
agatggttta gctacagcta tgggacaagt ggcttttgca gctgccaagg ttggaggagg 480
ctccgcagga acagctggca ctgtccagat gaatgtaaaa cagctttaca agacagcgtt 540
ttcttcgact tcttccagct cttatgcagc agcactttcc gatggatatt ctgcttacaa 600
aacactgaac tctttatatt ccgaaagcag aagcggcgtg cagtcagcta ttagtcaaac 660
tgcaaatccc gcgctttcca gaagcgtttc tcgttctggc atagaaagtc aaggacgcag 720
tgcagatgct agccaaagag cagcagaaac tattgtcaga gatagccaaa cgttaggtga 780
tgtatatagc cgcttacagg ttctggattc tttgatgtct acgattgtga gcaatccgca 840
agcaaatcaa gaagagatta tgcagaagct cacggcatct attagcaaag ctccacaatt 900
tgggtatcct gctgttcaga attctgtgga tagcttgcag aagtttgctg cacaattgga 960
aagagagttt gttgatgggg aacgtagtct cgcagaatct caagagaatg cgtttagaaa 1020
acagcccgct ttcattcaac aggtgttggt aaacattgct tctctattct ctggttatct 1080
ttcttaacgt gtgattgaag tttgtgaatt gaggggggagc caaaaaagaa tttctttttt 1140
ggctcttttt tcttttcaaa ggaatctcgt gtctacagaa gtcttttcaa taataagttc 1200
ttagttccaa aagaagaaaa tatataaaag aaaaaactcc taattcattt aaaaagtgct 1260
cggcagactt cgtggaaaat gtctgtaaag ctggagggga atcagcagaa agatgcaaga 1320
tatccgagaa aaaaggctca ggctcgtgcc gaattcggca cgagactacg aaagaaaggt 1380
cttttctttc ggaatctgtc attggatctg cgtaagactt aaagttcggc aacacaggct 1440
ctgtcttctc tttaggtttc ttgcgcgaga aaaattttct caagtaacaa gaagatttct 1500
ttttacagcc ggcatccggc ttctcgcgaa gtataac 1537

<210> 58
<211> 463
<212> DNA
<213> Chlamydia trachomatis

<400> 58
tctcaaatcc ttgctttgaa taatccagat atttcaaaaa ccatgttcga taaattcacc 60
cgacaaggac tccgtttcgt actagaagcc tctgtatcaa atattgagga tataggagat 120
cgcgttcggt taactatcaa tgggaatgtc gaagaatacg attacgttct cgtatctata 180
ggacgccgtt tgaatacaga aaatattggc ttggataaag ctggtgttat ttgtgatgaa 240
cgcggagtca tccctaccga tgccacaatg cgcacaaacg tacctaacat ttatgctatt 300
ggagatatca caggaaaatg gcaacttgcc catgtagctt ctcatcaagg aatcattgca 360
gcacggaata taggtggcca taaagaggaa atcgattact ctgctgtccc ttctgtgatc 420
tttaccttcc ctgaagtcgc ttcagtaggc ctctccccaa cag 463

<210> 59
<211> 552
<212> DNA
<213> Chlamydia trachomatis

<400> 59
acattcctcc tgctcctcgc ggccatccac aaattgaggt aaccttcgat attgatgcca 60
acggaatttt acacgtttct gctaaagatg ctgctagtgg acgcgaacaa aaaatccgta 120
ttgaagcaag ctctggatta aaagaagatg aaattcaaca aatgatccgc gatgcagagc 180

ttcataaaga ggaagacaaa caacgaaaag aagcttctga tgtgaaaaat gaagccgatg 240
gaatgatctt tagagccgaa aaagctgtga aagattacca cgacaaaatt cctgcagaac 300
ttgttaaaga aattgaagag catattgaga aagtacgcca agcaatcaaa gaagatgctt 360
ccacaacagc tatcaaagca gcttctgatg agttgagtac tcgtatgcaa aaaatcggag 420
aagctatgca ggctcaatcc gcatccgcag cagcatcttc tgcagcgaat gctcaaggag 480
ggccaaacat taactccgaa gatctgaaaa aacatagttt cagcacacga cctccagcag 540
gaggaagcgc ct 552

<210> 60
<211> 1180
<212> DNA
<213> Chlamydia trachomatis

<400> 60
atcctagcgg taaaactgct tactggtcag ataaaatcca tacagaagca acacgtactt 60
cttttaggag aaaaaatcta taatgctaga aaaatcctga gtaaggatca cttctcctca 120
acaacttttt catcttggat agagttagtt tttagaacta agtcttctgc ttacaatgct 180
cttgcatatt acgagctttt tataaacctc cccaaccaaa ctctacaaaa agagtttcaa 240
tcgatcccct ataaatccgc atatattttg gccgctagaa aaggcgattt aaaaaccaag 300
gtcgatgtga tagggaaagt atgtggaatc tcgtgccgaa ttcggcacga gcggcacgag 360
gatgtagagt aattagttaa agagctgcat aattatgaca aagcatggaa aacgcattcg 420
tggtatccaa gagacttacg atttagctaa gtcgtattct ttgggtgaag cgatagatat 480
tttaaaacag tgtcctactg tgcgtttcga tcaaacggtt gatgtgtctg ttaaattagg 540
gatcgatcca agaaagagtg atcagcaaat tcgtggttcg gtttctttac ctcacggtac 600
aggtaaagtt ttgcgaattt tagtttttgc tgctggagat aaggctgcag aggctattga 660
agcaggagcg gactttgttg gtagcgacga cttggtagaa aaaatcaaag gtggatgggt 720
tgacttcgat gttgcggttg ccactcccga tatgatgaga gaggtcggaa agctaggaaa 780
agttttaggt ccaagaaacc ttatgcctac gcctaaagcc ggaactgtaa caacagatgt 840
ggttaaaact attgcggaac tgcgaaaagg taaaattgaa tttaaagctg atcgagctgg 900
tgtatgcaac gtcggagttg cgaagctttc tttcgatagt gcgcaaatca aagaaaatgt 960
tgaagcgttg tgtgcagcct tagttaaagc taagcccgca actgctaaag gacaatattt 1020
agttaatttc actatttcct cgaccatggg gccaggggtt accgtggata ctagggagtt 1080
gattgcgtta taattctaag tttaaagagg aaaaatgaaa gaagagaaaa agttgctgct 1140
tcgcgaggtt gaagaaaaga taaccgcttc tcggcacgag 1180

<210> 61
<211> 1215
<212> DNA
<213> Chlamydia trachomatis

<400> 61
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attccttata gggtcagttc ctagaggccc aggaatggag agaagagatc ttctaaagaa 120
aaatggggag attgttgcta cgcaaggaaa agctttgaac acaacagcca agcgggatgc 180
aaagattttt gttgttggga accctgtgaa taccaattgc tggatagcaa tgaatcatgc 240
tcccagatta ttgagaaaga actttcatgc gatgctacga ttggaccaga atcgtatgca 300
tagcatgtta tcgcatagag cagaagtacc tttatcggct gtatcacaag ttgtggtttg 360
gggaaatcac tccgccaaac aagtgcctga ttttacgcaa gctctgatta atgaccgtcc 420
tatcgcagag acgatagcgg atcgtgattg gttagagaat attatggtgc cttctgtaca 480
gagtcgtggt agtgcagtaa ttgaagcacg agggaagtct tcggcagctt ctgcagcacg 540
agctttagca gaggctgctc gatcaatata tcagccaaaa gaaggactcg tgccgaattc 600
ggcacgagta tcgaaattgc aggcatttct agtgaatggt cgtatgctta taaactacgt 660
ggtacagact tgagctctca aaagtttgct acagattctt acatcgcaga cccttattct 720
aagaatatct actcccctca actatttgga tcccctaaac aagaaaagga ttacgcattt 780
agttacctga aatatgagga ttttgactgg gaaggcgaca ctcctttgca ccttccaaaa 840
gaaaattact tcatttatga aatgcatgtt cggtcattca cccgagatcc gtcttcccag 900
gtttcccatc ctggaacttt ccttggtatc atcgaaaaaa tagaccacct caaacaacta 960

ggcgttcatg cagttgaact ccttcctatt ttcgaattcg atgaaaccgt ccatccattt 1020
aaaaatcagg acttccccca cctgtgtaac tattgggggt attcttcggt gaatttttc 1080
tgcccctctc gccgttatac ttatggggca gacccttgcg ctccggcccg agagttcaag 1140
actcttgtca aagcgttaca ccgtgcggga atcgaagtca ttctcgatgt cgttttcaat 1200
catacaggct ttgaa 1215

<210> 62
<211> 688
<212> DNA
<213> Chlamydia trachomatis

<400> 62
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catgccgcac atccgcttct tcatgttctg tgaaatatgc atagtcttca ggattggaaa 180
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gaatcgcaga taaatattta ggaaaggctt tgatatgtaa ataatagtct ttggcacgag 540
cctgtaattg ctctttagta agctcccccc tcgaccattt cacataaaac gtgtgttcta 600
gcatatgctt attttgaata attaaatcta actgatctaa aaaattcata aacacctcca 660
tcatttcttt tcttgactcc acgtaacc 688

<210> 63
<211> 269
<212> DNA
<213> Chlamydia trachomatis

<400> 63
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gtgaagcaga gttcgtacgc agtgatccag cgacaactcc tactgctgat ggtaagctag 180
tttggaaaat tgaccgctta ggacaaggcg aaaagagtaa aattactgta tgggtaaaac 240
ctcttaaaga aggttgctgc tttacagct 269

<210> 64
<211> 1339
<212> DNA
<213> Chlamydia trachomatis

<400> 64
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ccccggcgaa ggatcttggt attctctccg cctgggaagc tggtgagctg cgttacaaac 180
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cacatagaga gtttctcccg taattgcgct agctagggga gagactaaga aggctgctgc 300
tgcgcctact tgctcagctt ccattggaga aggtagtgga gcccagtctt ggtagtaatc 360
caccattctc tcaataaatc caatagcttt tcctgcacgg ctagctaatg gccctgccga 420
gatagtattc actcggactc cccaacgtcg gccggcttcc caagccagta cttttgtatc 480
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cccgttatca tcgcctatgc cggctatgaa agcaattttt cctgttaaat caattttcaa 1080
catgagctaa ccccattttg tcttcttgag agaggagagt agcagattct ttattattga 1140
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aaagagtttc cttgtcaaat tcttatatgg gtagagttaa tcaactgttt tcaagtgatt 1260
tatgtttatt ttaaaataat ttgttttaac aactgtttaa tagttttaat ttttaaagtg 1320
tgaaaaacag gttttatat 1339

<210> 65
<211> 195
<212> PRT
<213> Chlamydia trachomatis

<400> 65

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1 5 10 15

Val Val Cys Gly Glu Glu Lys Glu Ile Ser Leu Ala Asp Phe Arg Gly
20 25 30

Lys Tyr Val Val Leu Phe Phe Tyr Pro Lys Asp Phe Thr Tyr Val Cys
35 40 45

Pro Thr Glu Leu His Ala Phe Gln Asp Arg Leu Val Asp Phe Glu Glu
50 55 60

His Gly Ala Val Val Leu Gly Cys Ser Val Asp Asp Ile Glu Thr His
65 70 75 80

Ser Arg Trp Leu Thr Val Ala Arg Asp Ala Gly Gly Ile Glu Gly Thr
85 90 95

Glu Tyr Pro Leu Leu Ala Asp Pro Ser Phe Lys Ile Ser Glu Ala Phe
100 105 110

Gly Val Leu Asn Pro Glu Gly Ser Leu Ala Leu Arg Ala Thr Phe Leu
115 120 125

Ile Asp Lys His Gly Val Ile Arg His Ala Val Ile Asn Asp Leu Pro
130 135 140

Leu Gly Arg Ser Ile Asp Glu Glu Leu Arg Ile Leu Asp Ser Leu Ile
145 150 155 160

Phe Phe Glu Asn His Gly Met Val Cys Pro Ala Asn Trp Arg Ser Gly
165 170 175

Glu Arg Gly Met Val Pro Ser Glu Glu Gly Leu Lys Glu Tyr Phe Gln
180 185 190

Thr Met Asp
195

<210> 66

<211> 520
<212> DNA
<213> Chlamydia

<400> 66
gatccgaatt cggcacgagg aggaatggaa gggccctccg attttaaatc tgctaccatg 60
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tgatgtaaat tagcgcaatt agaggggggat gaggttactt ggaaatataa ggagcgaagc 180
gatgaaggag atgtatttgc tctggaagca aaggtttctg aagctaacag aacattgcgt 240
cctccaacaa tcgcctgagg attctggctc atcagttgat gctttgcctg aatgagagcg 300
gacttaagtt tcccatcaga gggagctatt tgaattagat aatcaagagc tagatccttt 360
attgtgggat cagaaaattt acttgtgagc gcatcgagaa tttcgtcaga agaagaatca 420
tcatcgaacg aatttttcaa tcctcgaaaa tcttctccag agacttcgga aagatcttct 480
gtgaaacgat cttcaagagg agtatcgcct ttttcctctg 520

<210> 67
<211> 276
<212> DNA
<213> Chlamydia

<400> 67
gatccgaatt cggcacgagg tattgaagga gaaggatctg actcgatcta tgaaatcatg 60
atgcctatct atgaagttat gaatatggat ctagaaacac gaagatcttt tgcggtacag 120
caagggcact atcaggaccc aagagcttca gattatgacc tcccacgtgc tagcgactat 180
gatttgccta gaagcccata tcctactcca cctttgcctt ctagatatca gctacagaat 240
atggatgtag aagcagggtt ccgtgaggca gtttat 276

<210> 68
<211> 248
<212> DNA
<213> Chlamydia

<400> 68
gatccgaatt cggcacgagg tgttcaagaa tatgtccttc aagaatgggt taaattgaaa 60
gatctaccgg tagaagagtt gctagaaaaa cgatatcaga aattccgaac gataggtcta 120
tatgaaactt cttctgaaag cgattctgag gcataagaag catttagttt tattcggttt 180
ttctctttta tccatattag ggctaacgat aacgtctcaa gcagaaattt tttctctagg 240
tcttattg 248

<210> 69
<211> 715
<212> DNA
<213> Chlamydia

<220>
<221> unsure
<222> (34)
<223> n=A,T,C or G

<400> 69
gatccgaatt cggcacgaga aggtagatcc gatntcagca aaagtgctcc taaaggaaga 60
ttccttcggt atcctgcagc aaataaggtg gcacactcca tctcggacag tttgagcttt 120
attttcatat agttttcgac ggaactcttt attaaactcc caaaaccgaa tgttagtcgt 180
gtgggtgatg cctatatggt aagggaggtt tttggcttcg agaatattgg tgatcatttt 240
ttgtacgaca aaattagcta atgcagggac ctctgggggg aagtatgcat ctgatgttcc 300
atcttttcgg atgctagcaa cagggacaaa ataatctcct atttggtagt gggatcttaa 360
gcctccgcac atgcccaaca tgatcgctgc tgtagcattg ggaaggaaag aacacagatc 420

tacggtaaga gctgctcctg gagagcctaa tttaaaatcg atgattgagg tgtgaatttg 480
aggcgcatgc gctgccgaaa acatggatcc tcgagaaaca gggacctgat agatttcagc 540
gaaaacatcc acggtaatac ccmaaattag taagaaggag atagggctgg aactcttgaa 600
tggtagagcc ggtatagcgc tctagcatgt cacaggcgat tgtttcttcg ctgatttttt 660
tatgttgatg ggtcataaat cacagatatt ataatggtta gagaatcttt ttttc 715

<210> 70
<211> 323
<212> DNA
<213> Chlamydia

<400> 70
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cactgtttgg caagcaaaca accattcctc tttccacatc gttcttacca atacctctga 120
ggagcaatcc aacattctct cctgcacgac cttctgggag ttcttttctg aacatttcaa 180
ccccagtaac aatcgtttct ttagtatctc taagaccgac caactgaact ttatcggaaa 240
ctttaacaat tccacgctca atacgtccag ttactacagt tcctcgtccg gagatagaga 300
acacgtcctc aatgggcatt aag 323

<210> 71
<211> 715
<212> DNA
<213> Chlamydia

<400> 71
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gacccatcaa cataaaaaaa tcagcgaaga aacaatcgcc tgtgacatgc tagagcggct 120
ataccggctc taccattcaa gagttccagc cctatctcct tcttactaat tttgggtatt 180
acgtggatgt tttcgctgaa atctatcagg tccctgtttc tcgaggatcc atgttttcgg 240
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agcatccgaa aagatggaac atcagatgca tacttccccc cagaggtccc tgcattagct 480
aattttgtcg tacaaaaaat gatcaccaat attctcgaag ccaaaaacct cccttaccat 540
ataggcatca cccacacgac taacattcgg ttttgggagt ttaataaaga gttccgtcga 600
aaactatatg aaaataaagc tcaaactgtc gagatggagt gtgccacctt atttgctgca 660
ggataccgaa ggaatcttcc tttaggagca cttttgctga tatcggatct acctt 715

<210> 72
<211> 641
<212> DNA
<213> Chlamydia

<220>
<221> unsure
<222> (550)
<223> n=A,T,C or G
<221> unsure
<222> (559)
<223> n=A,T,C or G
<221> unsure
<222> (575)
<223> n=A,T,C or G
<221> unsure
<222> (583)
<223> n=A,T,C or G
<221> unsure

<222> (634)
<223> n=A,T,C or G
<221> unsure
<222> (638)
<223> n=A,T,C or G

<400> 72
gatccgaatt cggcacgaga tctcctcgag ctcgatcaaa cccacacttg ggacaagtac 60
ctacaacata acggtccgct aaaaacttcc cttcttcctc agaatacagc tgttcggtca 120
cctgattctc taccagtccg cgttcctgca agtttcgata gaaatcttgc acaatagcag 180
gatgataagc gttcgtagtt ctggaaaaga aatctacaga aattcccaat ttcttgaagg 240
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ctgcattaag ggtaattgcg attccgtatt catcagaacc acaaatatac aaaacctctt 360
tgccttgtag tctctgaaaa cgcgcataaa catctgcagg caaataagca ccggtaatat 420
gtccaaaatg caaaggacca tttgcgtaag gcaacgcaga agtaataaga atacgggaag 480
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gaaaccttgn tctcttcgnc tctctcctgt agcanacaaa tgnctctctc gacatctctt 600
tcagcgtatt cggactgatg ccctaaagat cccnggangt t 641

<210> 73
<211> 584
<212> DNA
<213> Chlamydia

<220>
<221> unsure
<222> (460)
<223> n=A,T,C or G
<221> unsure
<222> (523)
<223> n=A,T,C or G
<221> unsure
<222> (541)
<223> n=A,T,C or G
<221> unsure
<222> (546)
<223> n=A,T,C or G

<400> 73
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gacttattac ggaacgagta aggcggagat ttctagagtt ctgcaaaagg gtaagcactg 180
catagccgtg attgatgtac aaggagcttt ggctctgaag aagcaaatgc cggcagtcac 240
tatttttatt caagctccct ctcaagaaga acttgagcgc cgtttgaatg ctcgggattc 300
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tagcgaattt gattatgttg tggttaatga tgatttgatt acagcatatc aagttttaag 420
aagtattttt atagctgaag aacataggat gagtcatggn tagaaaagat cgtttaacta 480
atgaaagact gaataagcta tttgatagcc cctttagttt ggntaattac gtaattaagc 540
nagctnagaa caaaattgct agaggagatg ttcgttcttc taac 584

<210> 74
<211> 465
<212> DNA
<213> Chlamydia

<400> 74
gatccgaatt cggcacgagc tcgtgccgtt tgggatcgtg taatcgcatc ggagaatggt 60

taagaaatta ttttcgagtg aaagagctag gcgtaatcat tacagatagc catactactc 120
caatgcggcg tggagtactg ggtatcgggc tgtgttggta tggattttct ccattacaca 180
actatatagg atcgctagat tgtttcggtc gtcccttaca gatgacgcaa agtaatcttg 240
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agtattgttc tttgcgcata gatgaaacag aggacttata cggacctttt ttgcaagcgg 420
ttaccgtgga gtcaagaaaa gaaatgatgg aggtgtttat gaatt 465

<210> 75
<211> 545
<212> DNA
<213> Chlamydia

<400> 75
gaattcggca cgagatgaaa agttagcgtc acaggggatt ctcctaccaa agaattccga 60
aaagttttct tccaaaaacc tcttcctctc ttgattagtg atccctctgc aactacttta 120
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atccacgaat tttctctcta gcgatacgtg gaatttgact ctcataagaa tacaaagcag 240
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taggaaaggc tttgatatgt aaataatagt ctttggcata cgcctgtaat tgctctttag 540
taagc 545

<210> 76
<211> 797
<212> DNA
<213> Chlamydia

<220>
<221> unsure
<222> (788)
<223> n=A,T,C or G
<221> unsure
<222> (789)
<223> n=A,T,C or G

<400> 76
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agatacttct cctaagcatg ggggtatgcg taccggttat ttttctcttc atactcaaaa 780
aaagttgnng gggaata 797

<210> 77
<211> 399
<212> DNA

<213> Chlamydia

<400> 77
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aaaaagttaa aaataagtct gacatatatt tatggaatag gatcagctcg ttctgatgaa 120
atcattaaaa agttgaagtt agatcctgag gcaagagcct ctgaattaac tgaagaagaa 180
gtaggacgac tgaactctct gctacaatca gaatataccg tagaagggga tttgcgacgt 240
cgtgttcaat cggatatcaa aagattgatc gccatccatt cttatcgagg tcagagacat 300
agactttctt taccagtaag aggacaacgt acaaaaacta attctcgtac tcgaaaaggt 360
aaaagaaaaa cagtcgcagg taagaagaaa taagaattc 399

<210> 78
<211> 285
<212> DNA
<213> Chlamydia

<400> 78
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gtgaatattt ccacagattt agcagttata gttggcaagg gacctatgcc cagaaccgaa 120
attgtaaaga aagtttggga atacattaaa aaacacaact gtcaggatca aaaaaataaa 180
cgtaatatcc ttcccgatgc gaatcttgcc aaagtctttg gctctagtga tcctatcgac 240
atgttccaaa tgaccaaagc cctttccaaa catattgtaa aataa 285

<210> 79
<211> 950
<212> DNA
<213> Chlamydia

<400> 79
aaattaactc gagcacaaat tacggcaatt gctgagcaaa agatgaagga catggatgtc 60
gttcttttag agtccgccga gagaatggtt gaagggactg cccgaagcat gggtgtagat 120
gtagagtaat tagttaaaga gctgcataat tatgacaaag catggaaaac gcattcgtgg 180
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tgcgttataa ttctaagttt aaagaggaaa aatgaaagaa gagaaaaagt tgctgcttcg 900
cgaggttgaa gaaaagataa ccgcttctca aggttttatt ttgttgagat 950

<210> 80
<211> 395
<212> DNA
<213> Chlamydia

<400> 80
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ggctggttta gcatctaagg caacagaagc tcctctgctg taataagtga attcttcaga 120
agtaggtgtt cctacttgcg atagcatcgt tcctagtcct gatatccaca ggttgttata 180
gctaacttca tcaaagcgag ctagattcat tttatcgttg agcaagcctt gtttgactgt 240
gaccattgac atttgagatc ccagaatcga gttcgcatag aaatgattgt ctctaggtac 300

ataagcccat tgtctataag agtcaaattt ccagagcgct gagatcgttc cattttgtag 360
ttgatcagga tccagagtga gtgttcctgt atatc 395

<210> 81
<211> 2085
<212> DNA
<213> Chlamydia

<400> 81
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agtctcagtt agaacaattt gctcaagtag gtttagatac aagttggcaa gttgttttcg 180
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tgagtatgtt gggccgattt aatagtgacg atcgtgattg ggaaacgatc ggctgttctg 360
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gtgccttagc cgctgctgct tgggctggta tgtttgtatg atccaagcaa caggtatcgt 480
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gaatcatccg tttttaattg ggggagcgga gctctttgaa agtttttttcc aacaaaacct 780
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ttattattat gaaaataact ccgatcaaaa cacgtaaagt atttgcacat gattcgcttc 960
aagagatctt gcaagaggct ttgccgcctc tgcaagaacg gagtgtggta gttgtctctt 1020
caaagattgt gagtttatgt gaaggcgctg tcgctgatgc aagaatgtgc aaagcagagt 1080
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aaaaagaagg tattttgatt ccttctgcag ggattgatga atcgaatacg gaccagcctt 1200
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<210> 82
<211> 405
<212> DNA
<213> Chlamydia

<400> 82
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<210> 83
<211> 379
<212> DNA
<213> Chlamydia

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<211> 715
<212> DNA
<213> Chlamydia

<400> 84
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<210> 85
<211> 476
<212> DNA
<213> Chlamydia

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<210> 86
<211> 1551
<212> DNA
<213> Chlamydia

<400> 86
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<211> 3031
<212> DNA
<213> Chlamydia

<400> 87
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<210> 88
<211> 976
<212> DNA
<213> Chlamydia

<400> 88
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<210> 89
<211> 94
<212> PRT
<213> Chlamydia

<400> 89

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Met His His His His His His Met Ser Gln Lys Asn Lys Asn Ser Ala
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Phe Met His Pro Val Asn Ile Ser Thr Asp Leu Ala Val Ile Val Gly
            20                  25                  30

Lys Gly Pro Met Pro Arg Thr Glu Ile Val Lys Lys Val Trp Glu Tyr
        35                  40                  45

Ile Lys Lys His Asn Cys Gln Asp Gln Lys Asn Lys Arg Asn Ile Leu
    50                  55                  60

Pro Asp Ala Asn Leu Ala Lys Val Phe Gly Ser Ser Asp Pro Ile Asp
65                  70                  75                  80

Met Phe Gln Met Thr Lys Ala Leu Ser Lys His Ile Val Lys
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<210> 90
<211> 474
<212> PRT
<213> Chlamydia

<400> 90

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Met Ala Ser His His His His His His Met Asn Glu Ala Phe Asp Cys
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Val Val Ile Gly Ala Gly Pro Gly Gly Tyr Val Ala Ala Ile Thr Ala
            20                  25                  30

Ala Gln Ala Gly Leu Lys Thr Ala Leu Ile Glu Lys Arg Glu Ala Gly
        35                  40                  45

Gly Thr Cys Leu Asn Arg Gly Cys Ile Pro Ser Lys Ala Leu Leu Ala
    50                  55                  60

Gly Ala Glu Val Val Thr Gln Ile Arg His Ala Asp Gln Phe Gly Ile
65                  70                  75                  80

His Val Glu Gly Phe Ser Ile Asn Tyr Pro Ala Met Val Gln Arg Lys
                85                  90                  95

Asp Ser Val Val Arg Ser Ile Arg Asp Gly Leu Asn Gly Leu Ile Arg
            100                 105                 110

Ser Asn Lys Ile Thr Val Phe Ser Gly Arg Gly Ser Leu Ile Ser Ser
        115                 120                 125

Thr Glu Val Lys Ile Leu Gly Glu Asn Pro Ser Val Ile Lys Ala His
    130                 135                 140

Ser Ile Ile Leu Ala Thr Gly Ser Glu Pro Arg Ala Phe Pro Gly Ile
145                 150                 155                 160

Pro Phe Ser Ala Glu Ser Pro Arg Ile Leu Cys Ser Thr Gly Val Leu
                165                 170                 175
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Asn Leu Lys Glu Ile Pro Gln Lys Met Ala Ile Ile Gly Gly Gly Val
            180                 185                 190

Ile Gly Cys Glu Phe Ala Ser Leu Phe His Thr Leu Gly Ser Glu Val
        195                 200                 205

Ser Val Ile Glu Ala Ser Ser Gln Ile Leu Ala Leu Asn Asn Pro Asp
    210                 215                 220

Ile Ser Lys Thr Met Phe Asp Lys Phe Thr Arg Gln Gly Leu Arg Phe
225                 230                 235                 240

Val Leu Glu Ala Ser Val Ser Asn Ile Glu Asp Ile Gly Asp Arg Val
                245                 250                 255

Arg Leu Thr Ile Asn Gly Asn Val Glu Glu Tyr Asp Tyr Val Leu Val
            260                 265                 270

Ser Ile Gly Arg Arg Leu Asn Thr Glu Asn Ile Gly Leu Asp Lys Ala
        275                 280                 285

Gly Val Ile Cys Asp Glu Arg Gly Val Ile Pro Thr Asp Ala Thr Met
    290                 295                 300

Arg Thr Asn Val Pro Asn Ile Tyr Ala Ile Gly Asp Ile Thr Gly Lys
305                 310                 315                 320

Trp Gln Leu Ala His Val Ala Ser His Gln Gly Ile Ile Ala Ala Arg
                325                 330                 335

Asn Ile Gly Gly His Lys Glu Glu Ile Asp Tyr Ser Ala Val Pro Ser
            340                 345                 350

Val Ile Phe Thr Phe Pro Glu Val Ala Ser Val Gly Leu Ser Pro Thr
        355                 360                 365

Ala Ala Gln Gln Gln Lys Ile Pro Val Lys Val Thr Lys Phe Pro Phe
    370                 375                 380

Arg Ala Ile Gly Lys Ala Val Ala Met Gly Glu Ala Asp Gly Phe Ala
385                 390                 395                 400

Ala Ile Ile Ser His Glu Thr Thr Gln Gln Ile Leu Gly Ala Tyr Val
                405                 410                 415

Ile Gly Pro His Ala Ser Ser Leu Ile Ser Glu Ile Thr Leu Ala Val
            420                 425                 430

Arg Asn Glu Leu Thr Leu Pro Cys Ile Tyr Glu Thr Ile His Ala His
        435                 440                 445

Pro Thr Leu Ala Glu Val Trp Ala Glu Ser Ala Leu Leu Ala Val Asp
    450                 455                 460

Thr Pro Leu His Met Pro Pro Ala Lys Lys
465                 470
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<210> 91
<211> 129
<212> PRT
<213> Chlamydia

<400> 91

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Met His His His His His His Met Pro Arg Ile Ile Gly Ile Asp Ile
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Pro Ala Lys Lys Lys Leu Lys Ile Ser Leu Thr Tyr Ile Tyr Gly Ile
            20                  25                  30

Gly Ser Ala Arg Ser Asp Glu Ile Ile Lys Lys Leu Lys Leu Asp Pro
        35                  40                  45

Glu Ala Arg Ala Ser Glu Leu Thr Glu Glu Glu Val Gly Arg Leu Asn
    50                  55                  60

Ser Leu Leu Gln Ser Glu Tyr Thr Val Glu Gly Asp Leu Arg Arg Arg
65                  70                  75                  80

Val Gln Ser Asp Ile Lys Arg Leu Ile Ala Ile His Ser Tyr Arg Gly
                85                  90                  95

Gln Arg His Arg Leu Ser Leu Pro Val Arg Gly Gln Arg Thr Lys Thr
            100                 105                 110

Asn Ser Arg Thr Arg Lys Gly Lys Arg Lys Thr Val Ala Gly Lys Lys
        115                 120                 125

Lys
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<210> 92
<211> 202
<212> PRT
<213> Chlamydia

<400> 92

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Pro Asp Phe Ser Gly Lys Ala Val Val Cys Gly Glu Glu Lys Glu Ile
            20                  25                  30

Ser Leu Ala Asp Phe Arg Gly Lys Tyr Val Val Leu Phe Phe Tyr Pro
        35                  40                  45

Lys Asp Phe Thr Tyr Val Cys Pro Thr Glu Leu His Ala Phe Gln Asp
    50                  55                  60

Arg Leu Val Asp Phe Glu Glu His Gly Ala Val Val Leu Gly Cys Ser
65                  70                  75                  80
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Val Asp Asp Ile Glu Thr His Ser Arg Trp Leu Thr Val Ala Arg Asp
                 85                  90                  95

Ala Gly Gly Ile Glu Gly Thr Glu Tyr Pro Leu Leu Ala Asp Pro Ser
            100                 105                 110

Phe Lys Ile Ser Glu Ala Phe Gly Val Leu Asn Pro Glu Gly Ser Leu
        115                 120                 125

Ala Leu Arg Ala Thr Phe Leu Ile Asp Lys His Gly Val Ile Arg His
    130                 135                 140

Ala Val Ile Asn Asp Leu Pro Leu Gly Arg Ser Ile Asp Glu Glu Leu
145                 150                 155                 160

Arg Ile Leu Asp Ser Leu Ile Phe Phe Glu Asn His Gly Met Val Cys
                165                 170                 175

Pro Ala Asn Trp Arg Ser Gly Glu Arg Gly Met Val Pro Ser Glu Glu
            180                 185                 190

Gly Leu Lys Glu Tyr Phe Gln Thr Met Asp
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<210> 93
<211> 19
<212> PRT
<213> Artificial Sequence

<220>
<223> made in a lab

<400> 93
Glu Asn Ser Leu Gln Asp Pro Thr Asn Lys Arg Asn Ile Asn Pro Asp
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Asp Lys Leu

<210> 94
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> Made in a lab

<400> 94
Asp Pro Thr Asn Lys Arg Asn Ile Asn Pro Asp Asp Lys Leu Ala Lys
 1               5                  10                  15
Val Phe Gly Thr
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<210> 95
<211> 20
<212> PRT

<213> Artificial Sequence

<220>
<223> Made in a lab

<400> 95
Lys Arg Asn Ile Asn Pro Asp Asp Lys Leu Ala Lys Val Phe Gly Thr
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Glu Lys Pro Ile
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<210> 96
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> Made in a lab

<400> 96
Asp Asp Lys Leu Ala Lys Val Phe Gly Thr Glu Lys Pro Ile Asp Met
 1               5                  10                  15
Phe Gln Met Thr
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<210> 97
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> Made in a lab

<400> 97
Lys Val Phe Gly Thr Glu Lys Pro Ile Asp Met Phe Gln Met Thr Lys
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Met Val Ser Gln
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<210> 98
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> Made in a lab

<400> 98
Asn Lys Arg Asn Ile Asn Pro Asp Asp Lys Leu Ala Lys Val Phe Gly
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Thr Glu Lys Pro
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<210> 99
<211> 16
<212> PRT
<213> Artificial Sequence

<220>
<223> Made in a lab

<400> 99
Asn Lys Arg Asn Ile Leu Pro Asp Ala Asn Leu Ala Lys Val Phe Gly
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<210> 100
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> Made in a lab

<400> 100
Lys Met Trp Asp Tyr Ile Lys Glu Asn Ser Leu Gln Asp Pro Thr
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<210> 101
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> Made in a lab

<400> 101
Thr Glu Ile Val Lys Lys Val Trp Glu Tyr Ile Lys Lys His Asn Cys
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Gln Asp Gln Lys
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<210> 102
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> Made in a lab

<400> 102
Lys Val Trp Glu Tyr Ile Lys Lys His Asn Cys Gln Asp Gln Lys Asn
1 5 10 15
Lys Arg Asn Ile
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<210> 103
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> Made in a lab

<400> 103

Lys Val Trp Glu Tyr Ile Lys Lys His Asn Cys Gln Asp Gln Lys
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<210> 104
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> Made in a lab

<400> 104
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Ser Asp Tyr Val
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<210> 105
<211> 21
<212> PRT
<213> Artificial Sequence

<220>
<223> Made in a lab

<400> 105
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Ser Asp Ile Lys Arg
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<210> 106
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<212> PRT
<213> Artificial Sequence

<220>
<223> Made in a lab

<400> 106
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<210> 107
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> Made in a lab

<400> 107
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Ser Asp Tyr Val

20

<210> 108
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> Made in a lab

<400> 108
Leu Asn Ala Leu Leu Gln Ser Asp Tyr Val Val Glu Gly Asp Leu Arg
1 5 10 15
Arg Arg Val Gln
20

<210> 109
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> Made in a lab

<400> 109
Leu Asn Ser Leu Leu Gln Ser Glu Tyr Thr Val Glu Gly Asp Leu Arg
1 5 10 15
Arg Arg Val Gln
20

<210> 110
<211> 1461
<212> DNA
<213> Chlamydia

<400> 110
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tgcctagaag cccatatcct actccacctt tgccttctag atatcagcta cagaatatgg 180
atgtagaagc agggttccgt gaggcagttt atgcttcttt tgtagcagga atgtacaatt 240
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aagaagaaat tctctttggt gggcttcttt ttttattcaa aaaagaaagc cctcttcaag 480
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attgccaaga gttggaagaa aaaatattag atttgtgtaa gcgtcatgcc gcaacaattt 600
gctccattga ggaggatgct aaacaagaaa ttcgtcatca gacagaaagg tttaaacagc 660
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ggacagatta gagaaaaatg agcaagcttt attgtccgat gtgcgcttag ttttatctag 1440
ctacacaaga tggttggata g 1461

<210> 111
<211> 267
<212> DNA
<213> Chlamydia

<400> 111
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gaaaagctat gttggaagac atcgctatct taactggcgg tcaactcatt agcgaagagt 180
tgggcatgaa attagaaaac gctaacttag ctatgttagg taaagctaaa aaagttatcg 240
tttctaaaga agacacgacc atcgtcg 267

<210> 112
<211> 698
<212> DNA
<213> Chlamydia

<400> 112
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agatctgagc caactgaaaa aatacacagt tctctacatc aagaagctgc tcgaaaccta 180
cagacaactc gggcatcgaa agacaaaaat tgcaaaattt gatgacctac ctaccgagag 240
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aagctgtaaa cgtatacgtt taccgctctt ccataatttc taggctgact ttcacattat 480
ctcgacttgc tacggaaacc aataaagtac ggatagcctt aatagtgcgt ccttctttac 540
cgataatttt accgatatct cccttagcaa cagtcaattc gtagataatc gtattggttc 600
cctgcacctc tttcagatgc acttcctctg gcttatcaac aagatttttt acaatgtacg 660
ctaaaaactc tttcatgcga agcaaatcct acacaagc 698

<210> 113
<211> 1142
<212> DNA
<213> Chlamydia

<400> 113
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agagttgata aaaaaagaag cggatgctta tttgttttgt gagaaaagcg ggatatatct 120
aacgaaaaaa gaaggtattt tgattccttc tgcagggatt gatgaatcga atacggacca 180
gccttttgtt ttatatccta aagatatttt gggatcgtgt aatcgcatcg gagaatggtt 240
aagaaattat tttcgagtga aagagctagg cgtaatcatt acagatagcc atactactcc 300
aatgcggcgt ggagtactgg gtatcgggct gtgttggtat ggattttctc cattacacaa 360
ctatatagga tcgctagatt gtttcggtcg tcccttacag atgacgcaaa gtaatcttgt 420
agatgcctta gcagttgcgg ctgttgtttg tatgggagag gggaatgagc aaacaccgtt 480
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gtattgttct ttgcgcatag atgaaacaga ggacttatac ggacctttt tgcaagcggt 600
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ttaattattc aaaataagca tatgctagaa cacacgtttt atgtgaaatg gtcgaagggg 720
gagcttacta aagagcaatt acaggcgtat gccaaagact attatttaca tatcaaagcc 780
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ca 1142

<210> 114
<211> 976
<212> DNA
<213> Chlamydia

<400> 114
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ggcacaaagt accttctggg cgcactactt taaagattcg tcgtcctttt ggtactacga 180
gagaagttcg tgtgaaatgg cgttatgttc ctgaaggtgt aggagatttg gctaccatag 240
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cagagcttcg caatcattat gcaacgagtg gtttgaaaag cgggtacaat attgggagta 420
ccgatgggtt tctccctgtc attgggcctg ttatatggga gtcggagggt cttttccgcg 480
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aaacgaacaa cccaggtggt agtgtccttt atctttatgc actgctttcc atgttgacag 720
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ctcttttgg ttttga 976

<210> 115
<211> 995
<212> DNA
<213> Chlamydia

<400> 115
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tattgcctct tctgaaggaa ctcgtactac tccttctatc gttgctttta aaggtggcga 180
aactcttgtt ggaattcctg caaaacgtca ggcagtaacc aatcctgaaa aaacattggc 240
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cccctacaaa gttgctccta actcgaaagg agatgcggtc tttgatgtgg aacaaaaact 360
gtacactcca gaagaaatcg gcgctcagat cctcatgaag atgaaggaaa ctgctgaggc 420
ttatctcgga gaaacagtaa cggaagcagt cattaccgta ccagcttact ttaacgattc 480
tcaaagagct tctacaaaag atgctggacg tatcgcagga ttagatgtta aacgcattat 540
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agataacatg gctttgcaaa gattgaaaga tgctgctgaa aaagcaaaaa tagaattgtc 840
tggtgtatcg tctactgaaa tcaatcagcc attcatcact atcgacgcta atggacctaa 900
acatttggct ttaactctaa ctcgcgctca attcgaacac ctagcttcct ctctcattga 960
gcgaaccaaa caaccttgtg ctcaggcttt aaaag 995

<210> 116
<211> 437
<212> DNA

<213> Chlamydia

<400> 116
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ggaaccctta cttgtaaaaa ctctcaccgt ctacaatttt tgaaaaactc ttccgataaa 180
caaggtggag gaatctacgg agaagacaac atcaccctat ctaatttgac agggaagact 240
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catggtggtg gagcctttgt taccaaagaa atctctcaga cttacacctc tgatgtggaa 420
acaattccag gaatcac 437

<210> 117
<211> 446
<212> DNA
<213> Chlamydia

<400> 117
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caacaagaca acgacaatgg gaatacattc ttgctcactg cgaggaaggt tctattgtta 120
agggacaaat tacccgaaaa gttaagggtg gtttgatcgt agatattggt atggaagcct 180
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gaagagaact tctcgaagct gaacgcattt ctaagaaagc agagttgatc gagcaaatca 360
ctatcggtga acgtcgcaaa ggtatcgtta agaatatcac agatttcgga gtattcttgg 420
atcttgatgg cattgacggc ctactc 446

<210> 118
<211> 951
<212> DNA
<213> Chlamydia

<400> 118
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gattccctct ttatcctgaa atcgatctgg aaacgctagt ttagtgggag actctatgcc 180
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aagagatggt tgatgggttt ttatgtgtag agtcttctga aatagcagat gctaaactca 900
ctgtttttaa tagtgatgga tctatcgcgt ctatgtgcgg gaatgggttg c 951

<210> 119
<211> 953
<212> DNA
<213> Chlamydia

<400> 119
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ataatccatc aaccaatgct tctattacaa ttggtttgga tgcggaaaaa gcttaccagc 180
ttattctaga aaagttggga gatcaaattc ttggtggaat tgctgatact attgttgata 240
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acattgaaac tttattagga ggaactgaaa taggaaaatt cacagtcaca cccaaaagct 420
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caggcgttcc taatttatgt agtctaagaa ccagaattat taatacagga ttgactccga 600
caacgtattc attacgtgta ggcggtttag aaagcggtgt ggtatgggtt aatgcccttt 660
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tacctcaaac aaacgcttaa acaattttta ttggattttt cttataggtt ttatatttag 780
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ttattaaaat tgttaaagat tcctggtatc ggtctgcgat tccgactcgt ccaacatcaa 900
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<210> 120
<211> 897
<212> DNA
<213> Chlamydia

<400> 120

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gttaaggtcg ccaagtctgc tgccgaattg accgcaaata ttttggaaca agctggaggc     180
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ctcgtagcag atctttgtgt gtctcataag cgcanagcgg ctgcggctgt ctgtagcttc     420
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ttcacgcgca tcaagtatgc actcctcact atgctcgaga agtttttgga atgcgttgcc     780
gacgttttca aattggtgcc gttgcctatt acaatgggta ttcgtgcaat tgtggctgcg     840
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<210> 121
<211> 298
<212> PRT
<213> Chlamydia

<400> 121

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            20                  25                  30
Lys Thr Lys Gly Met Asp Lys Thr Val Lys Val Ala Lys Ser Ala Ala
        35                  40                  45
Glu Leu Thr Ala Asn Ile Leu Glu Gln Ala Gly Gly Ala Gly Ser Ser
    50                  55                  60
Ala His Ile Thr Ala Ser Gln Val Ser Lys Gly Leu Gly Asp Ala Arg
65                  70                  75                  80
Thr Val Leu Ala Leu Gly Asn Ala Phe Asn Gly Ala Leu Pro Gly Thr
                85                  90                  95
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Val Gln Ser Ala Gln Ser Phe Phe Ser Tyr Met Lys Ala Ala Ser Gln
            100                 105                 110
Lys Pro Gln Glu Gly Asp Glu Gly Leu Val Ala Asp Leu Cys Val Ser
        115                 120                 125
His Lys Arg Arg Ala Ala Ala Ala Val Cys Ser Phe Ile Gly Gly Ile
    130                 135                 140
Thr Tyr Leu Ala Thr Phe Gly Ala Ile Arg Pro Ile Leu Phe Val Asn
145                 150                 155                 160
Lys Met Leu Ala Gln Pro Phe Leu Ser Ser Gln Ile Lys Ala Asn Met
                165                 170                 175
Gly Ser Ser Val Ser Tyr Ile Met Ala Ala Asn His Ala Ala Phe Val
            180                 185                 190
Val Gly Ser Gly Leu Ala Ile Ser Ala Glu Arg Ala Asp Cys Glu Ala
        195                 200                 205
Arg Cys Ala Arg Ile Ala Arg Glu Glu Ser Ser Leu Glu Leu Ser Gly
    210                 215                 220
Glu Glu Asn Ala Cys Glu Arg Arg Val Ala Gly Glu Lys Ala Lys Thr
225                 230                 235                 240
Phe Thr Arg Ile Lys Tyr Ala Leu Leu Thr Met Leu Glu Lys Phe Leu
                245                 250                 255
Glu Cys Val Ala Asp Val Phe Lys Leu Val Pro Leu Pro Ile Thr Met
            260                 265                 270
Gly Ile Arg Ala Ile Val Ala Ala Gly Cys Thr Phe Thr Ser Ala Val
        275                 280                 285
Ile Gly Leu Trp Thr Phe Cys Ala Arg Ala
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<210> 122
<211> 897
<212> DNA
<213> Chlamydia

<400> 122

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gcgggctctt ccgcacacat tacagcttcc caagtgtcca aaggattagg ggatacgaga     240
actgttgtcg ctttagggaa tgcctttaac ggagcgttgc caggaacagt tcaaagtgcg     300
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gcggaaagag cagattgcga agcccgctgc gctcgtattg cgagagaaga gtcgttactc     660
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gacgttttca aattggtgcc gctgcctatt acaatgggta ttcgtgcgat tgtggctgct     840
ggatgtacgt tcacttctgc aattattgga ttgtgcactt tctgcgccag agcataa        897
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<210> 123
<211> 298
<212> PRT
<213> Chlamydia

<400> 123

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Met Ala Ser Ile Cys Gly Arg Leu Gly Ser Gly Thr Gly Asn Ala Leu
 1               5                  10                  15
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Lys Ala Phe Phe Thr Gln Pro Ser Asn Lys Met Ala Arg Val Val Asn
            20                  25                  30
Lys Thr Lys Gly Met Asp Lys Thr Val Lys Val Ala Lys Ser Ala Ala
        35                  40                  45
Glu Leu Thr Ala Asn Ile Leu Glu Gln Ala Gly Gly Ala Gly Ser Ser
    50                  55                  60
Ala His Ile Thr Ala Ser Gln Val Ser Lys Gly Leu Gly Asp Thr Arg
65                  70                  75                  80
Thr Val Val Ala Leu Gly Asn Ala Phe Asn Gly Ala Leu Pro Gly Thr
                85                  90                  95
Val Gln Ser Ala Gln Ser Phe Phe Ser His Met Lys Ala Ala Ser Gln
            100                 105                 110
Lys Thr Gln Glu Gly Asp Glu Gly Leu Thr Ala Asp Leu Cys Val Ser
        115                 120                 125
His Lys Arg Arg Ala Ala Ala Ala Val Cys Gly Phe Ile Gly Gly Ile
    130                 135                 140
Thr Tyr Leu Ala Thr Phe Gly Val Ile Arg Pro Ile Leu Phe Val Asn
145                 150                 155                 160
Lys Met Leu Val Asn Pro Phe Leu Ser Ser Gln Thr Lys Ala Asn Met
                165                 170                 175
Gly Ser Ser Val Ser Tyr Ile Met Ala Ala Asn His Ala Ala Ser Val
            180                 185                 190
Val Gly Ala Gly Leu Ala Ile Ser Ala Glu Arg Ala Asp Cys Glu Ala
        195                 200                 205
Arg Cys Ala Arg Ile Ala Arg Glu Glu Ser Leu Leu Glu Val Ser Gly
    210                 215                 220
Glu Glu Asn Ala Cys Glu Lys Arg Val Ala Gly Glu Lys Ala Lys Thr
225                 230                 235                 240
Phe Thr Arg Ile Lys Tyr Ala Leu Leu Thr Met Leu Glu Lys Phe Leu
                245                 250                 255
Glu Cys Val Ala Asp Val Phe Lys Leu Val Pro Leu Pro Ile Thr Met
            260                 265                 270
Gly Ile Arg Ala Ile Val Ala Ala Gly Cys Thr Phe Thr Ser Ala Ile
        275                 280                 285
Ile Gly Leu Cys Thr Phe Cys Ala Arg Ala
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<210> 124
<211> 897
<212> DNA
<213> Chlamydia

<400> 124

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attaaggttg ccaagtctgc tgccgaattg accgcaaata ttttggaaca agctggaggc     180
gcgggctctt ccgcacacat tacagcttcc caagtgtcca aaggattagg ggatgcgaga     240
actgttgtcg ctttagggaa tgcctttaac ggagcgttgc caggaacagt tcaaagtgcg     300
caaagcttct tctctcacat gaaagctgct agtcagaaaa cgcaagaagg ggatgagggg     360
ctcacagcag atctttgtgt gtctcataag cgcagagcgg ctgcggctgt ctgtagcatc     420
atcggaggaa ttacctacct cgcgacattc ggagctatcc gtccgattct gtttgtcaac     480
aaaatgctgg caaaaccgtt tctttcttcc caaactaaag caaatatggg atcttctgtt     540
agctatatta tggcggctaa ccatgcagcg tctgtggtgg gtgctggact cgctatcagt     600
gcggaaagag cagattgcga agcccgctgc gctcgtattg cgagagaaga gtcgttactc     660
gaagtgccgg gagaggaaaa tgcttgcgag aagaaagtcg ctggagagaa agccaagacg     720
ttcacgcgca tcaagtatgc actcctcact atgctcgaga agtttttgga atgcgttgcc     780
gacgttttca aattggtgcc gctgcctatt acaatgggta ttcgtgcgat tgtggctgct     840
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ggatgtacgt tcacttctgc aattattgga ttgtgcactt tctgcgccag agcataa 897

<210> 125
<211> 298
<212> PRT
<213> Chlamydia

<400> 125

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Met Ala Ser Ile Cys Gly Arg Leu Gly Ser Gly Thr Gly Asn Ala Leu
 1               5                  10                  15
Lys Ala Phe Phe Thr Gln Pro Asn Asn Lys Met Ala Arg Val Val Asn
            20                  25                  30
Lys Thr Lys Gly Met Asp Lys Thr Ile Lys Val Ala Lys Ser Ala Ala
        35                  40                  45
Glu Leu Thr Ala Asn Ile Leu Glu Gln Ala Gly Gly Ala Gly Ser Ser
    50                  55                  60
Ala His Ile Thr Ala Ser Gln Val Ser Lys Gly Leu Gly Asp Ala Arg
65                  70                  75                  80
Thr Val Val Ala Leu Gly Asn Ala Phe Asn Gly Ala Leu Pro Gly Thr
                85                  90                  95
Val Gln Ser Ala Gln Ser Phe Phe Ser His Met Lys Ala Ala Ser Gln
            100                 105                 110
Lys Thr Gln Glu Gly Asp Glu Gly Leu Thr Ala Asp Leu Cys Val Ser
        115                 120                 125
His Lys Arg Arg Ala Ala Ala Ala Val Cys Ser Ile Ile Gly Gly Ile
    130                 135                 140
Thr Tyr Leu Ala Thr Phe Gly Ala Ile Arg Pro Ile Leu Phe Val Asn
145                 150                 155                 160
Lys Met Leu Ala Lys Pro Phe Leu Ser Ser Gln Thr Lys Ala Asn Met
                165                 170                 175
Gly Ser Ser Val Ser Tyr Ile Met Ala Ala Asn His Ala Ala Ser Val
            180                 185                 190
Val Gly Ala Gly Leu Ala Ile Ser Ala Glu Arg Ala Asp Cys Glu Ala
        195                 200                 205
Arg Cys Ala Arg Ile Ala Arg Glu Glu Ser Leu Leu Glu Val Pro Gly
    210                 215                 220
Glu Glu Asn Ala Cys Glu Lys Lys Val Ala Gly Glu Lys Ala Lys Thr
225                 230                 235                 240
Phe Thr Arg Ile Lys Tyr Ala Leu Leu Thr Met Leu Glu Lys Phe Leu
                245                 250                 255
Glu Cys Val Ala Asp Val Phe Lys Leu Val Pro Leu Pro Ile Thr Met
            260                 265                 270
Gly Ile Arg Ala Ile Val Ala Ala Gly Cys Thr Phe Thr Ser Ala Ile
        275                 280                 285
Ile Gly Leu Cys Thr Phe Cys Ala Arg Ala
    290                 295
```

<210> 126
<211> 897
<212> DNA
<213> Chlamydia

<400> 126

```
atggcttcta tatgcggacg tttagggtct ggtacaggga atgctctaaa agctttttt   60
acacagccca acaataaaat ggcaagggta gtaaataaga cgaagggaat ggataagact  120
attaaggttg ccaagtctgc tgccgaattg accgcaaata ttttggaaca agctggaggc  180
gcgggctctt ccgcacacat tacagcttcc caagtgtcca aaggattagg ggatgcgaga  240
```

```
actgttgtcg ctttagggaa tgcctttaac ggagcgttgc caggaacagt tcaaagtgcg     300
caaagcttct tctctcacat gaaagctgct agtcagaaaa cgcaagaagg ggatgagggg     360
ctcacagcag atctttgtgt gtctcataag cgcagagcgg ctgcggctgt ctgtagcatc     420
atcggaggaa ttacctacct cgcgacattc ggagctatcc gtccgattct gtttgtcaac     480
aaaatgctgg caaaaccgtt tctttcttcc caaactaaag caaatatggg atcttctgtt     540
agctatatta tggcggctaa ccatgcagcg tctgtggtgg gtgctggact cgctatcagt     600
gcggaaagag cagattgcga agcccgctgc gctcgtattg cgagagaaga gtcgttactc     660
gaagtgccgg gagaggaaaa tgcttgcgag aagaaagtcg ctggagagaa agccaagacg     720
ttcacgcgca tcaagtatgc actcctcact atgctcgaga agtttttgga atgcgttgcc     780
gacgttttca aattggtgcc gctgcctatt acaatgggta ttcgtgcgat tgtggctgct     840
ggatgtacgt tcacttctgc aattattgga ttgtgcactt tctgcgccag agcataa        897
```

<210> 127
<211> 298
<212> PRT
<213> Chlamydia

<400> 127

```
Met Ala Ser Ile Cys Gly Arg Leu Gly Ser Gly Thr Gly Asn Ala Leu
 1               5                  10                  15
Lys Ala Phe Phe Thr Gln Pro Asn Asn Lys Met Ala Arg Val Val Asn
            20                  25                  30
Lys Thr Lys Gly Met Asp Lys Thr Ile Lys Val Ala Lys Ser Ala Ala
        35                  40                  45
Glu Leu Thr Ala Asn Ile Leu Glu Gln Ala Gly Gly Ala Gly Ser Ser
    50                  55                  60
Ala His Ile Thr Ala Ser Gln Val Ser Lys Gly Leu Gly Asp Ala Arg
65                  70                  75                  80
Thr Val Val Ala Leu Gly Asn Ala Phe Asn Gly Ala Leu Pro Gly Thr
                85                  90                  95
Val Gln Ser Ala Gln Ser Phe Phe Ser His Met Lys Ala Ala Ser Gln
            100                 105                 110
Lys Thr Gln Glu Gly Asp Glu Gly Leu Thr Ala Asp Leu Cys Val Ser
        115                 120                 125
His Lys Arg Arg Ala Ala Ala Ala Val Cys Ser Ile Ile Gly Gly Ile
    130                 135                 140
Thr Tyr Leu Ala Thr Phe Gly Ala Ile Arg Pro Ile Leu Phe Val Asn
145                 150                 155                 160
Lys Met Leu Ala Lys Pro Phe Leu Ser Ser Gln Thr Lys Ala Asn Met
                165                 170                 175
Gly Ser Ser Val Ser Tyr Ile Met Ala Ala Asn His Ala Ala Ser Val
            180                 185                 190
Val Gly Ala Gly Leu Ala Ile Ser Ala Glu Arg Ala Asp Cys Glu Ala
        195                 200                 205
Arg Cys Ala Arg Ile Ala Arg Glu Glu Ser Leu Leu Glu Val Pro Gly
    210                 215                 220
Glu Glu Asn Ala Cys Glu Lys Lys Val Ala Gly Glu Lys Ala Lys Thr
225                 230                 235                 240
Phe Thr Arg Ile Lys Tyr Ala Leu Leu Thr Met Leu Glu Lys Phe Leu
                245                 250                 255
Glu Cys Val Ala Asp Val Phe Lys Leu Val Pro Leu Pro Ile Thr Met
            260                 265                 270
Gly Ile Arg Ala Ile Val Ala Ala Gly Cys Thr Phe Thr Ser Ala Ile
        275                 280                 285
Ile Gly Leu Cys Thr Phe Cys Ala Arg Ala
    290                 295
```

<210> 128
<211> 897
<212> DNA
<213> Chlamydia

<400> 128
atggcttcta tatgtggacg tttagggtct ggtacaggga atgctctaaa agctttttt 60
acacagccca gcaataaaat ggcaagggta gtaaataaga cgaagggaat ggataagact 120
gttaaggtcg ccaagtctgc tgccgaattg accgcaaata ttttggaaca agctggaggc 180
gcgggctctt ccgcacacat tacagcttcc caagtgtcca aaggattagg ggatacgaga 240
actgttgtcg ctttagggaa tgcctttaac ggagcgttgc caggaacagt tcaaagtgcg 300
caaagcttct tctctcacat gaaagctgct agtcagaaaa cgcaagaagg ggatgagggg 360
ctcacagcag atctttgtgt gtctcataag cgcagagcgg ctgcggctgt ctgtggcttc 420
atcggaggaa ttacctacct cgcgacattc ggagttatcc gtccgattct gtttgtcaac 480
aaaatgctgg tgaacccgtt tctttcttcc caaactaaag caaatatggg atcttctgtt 540
agctatatta tggcggctaa ccatgcagcg tctgtggtgg gtgctggact cgctatcagt 600
gcggaaagag cagattgcga agcccgctgc gctcgtattg cgagagaaga gtcgttactc 660
gaagtgtcgg gagaggaaaa tgcttgcgag aagagagtcg ctggagagaa agccaagacg 720
ttcacgcgca tcaagtatgc actcctcact atgctcgaga agtttttgga atgcgttgcc 780
gacgttttca aattggtgcc gctgcctatt acaatgggta ttcgtgcgat tgtggctgct 840
ggatgtacgt tcacttctgc aattattgga ttgtgcactt tctgcgccag agcataa 897

<210> 129
<211> 298
<212> PRT
<213> Chlamydia

<400> 129
Met Ala Ser Ile Cys Gly Arg Leu Gly Ser Gly Thr Gly Asn Ala Leu
1 5 10 15
Lys Ala Phe Phe Thr Gln Pro Ser Asn Lys Met Ala Arg Val Val Asn
20 25 30
Lys Thr Lys Gly Met Asp Lys Thr Val Lys Val Ala Lys Ser Ala Ala
35 40 45
Glu Leu Thr Ala Asn Ile Leu Glu Gln Ala Gly Gly Ala Gly Ser Ser
50 55 60
Ala His Ile Thr Ala Ser Gln Val Ser Lys Gly Leu Gly Asp Thr Arg
65 70 75 80
Thr Val Val Ala Leu Gly Asn Ala Phe Asn Gly Ala Leu Pro Gly Thr
85 90 95
Val Gln Ser Ala Gln Ser Phe Phe Ser His Met Lys Ala Ala Ser Gln
100 105 110
Lys Thr Gln Glu Gly Asp Glu Gly Leu Thr Ala Asp Leu Cys Val Ser
115 120 125
His Lys Arg Arg Ala Ala Ala Ala Val Cys Gly Phe Ile Gly Gly Ile
130 135 140
Thr Tyr Leu Ala Thr Phe Gly Val Ile Arg Pro Ile Leu Phe Val Asn
145 150 155 160
Lys Met Leu Val Asn Pro Phe Leu Ser Ser Gln Thr Lys Ala Asn Met
165 170 175
Gly Ser Ser Val Ser Tyr Ile Met Ala Ala Asn His Ala Ala Ser Val
180 185 190
Val Gly Ala Gly Leu Ala Ile Ser Ala Glu Arg Ala Asp Cys Glu Ala
195 200 205
Arg Cys Ala Arg Ile Ala Arg Glu Glu Ser Leu Leu Glu Val Ser Gly
210 215 220
Glu Glu Asn Ala Cys Glu Lys Arg Val Ala Gly Glu Lys Ala Lys Thr

```
225                 230                 235                 240
Phe Thr Arg Ile Lys Tyr Ala Leu Leu Thr Met Leu Glu Lys Phe Leu
                245                 250                 255
Glu Cys Val Ala Asp Val Phe Lys Leu Val Pro Leu Pro Ile Thr Met
            260                 265                 270
Gly Ile Arg Ala Ile Val Ala Ala Gly Cys Thr Phe Thr Ser Ala Ile
        275                 280                 285
Ile Gly Leu Cys Thr Phe Cys Ala Arg Ala
    290                 295
```

<210> 130
<211> 897
<212> DNA
<213> Chlamydia

<400> 130

```
atggctgcta tatgtggacg tttagggtct ggtacaggga atgctctaaa agctttttt      60
acacagccca gcaataaaat ggcaagggta gtaaataaga cgaagggaat ggataagact     120
gttaaggtcg ccaagtctgc tgccgaattg accgcaaata ttttggaaca agctggaggc     180
gcgggctctt ccgcacacat tacagcttcc caagtgtcca aaggattagg ggatgcgaga     240
actgttctcg ctttagggaa tgcctttaac ggagcgttgc caggaacagt tcaaagtgcg     300
caaagcttct tctcttacat gaaagctgct agtcagaaac cgcaagaagg ggatgagggg     360
ctcgtagcag atctttgtgt gtctcataag cgcagagcgg ctgcggctgt ctgtagcttc     420
atcggaggaa ttacctacct cgcgacattc ggagctatcc gtccgattct gtttgtcaac     480
aaaatgctgg cgcaaccgtt tctttcttcc caaactaaag caaatatggg atcttctgtt     540
agctatatta tggcggctaa ccatgcagcg tttgtggtgg gttctggact cgctatcagt     600
gcggaaagag cagattgcga agcccgctgc gctcgtattg cgagagaaga gtcgtcactc     660
gaattgtcgg gagaggaaaa tgcttgcgag aggggagtcg ctggagagaa agccaagacg     720
ttcacgcgca tcaagtatgc actcctcact atgctcgaga agtttttgga atgcgttgcc     780
gacgttttca aattggtgcc gttgcctatt acaatgggta ttcgtgcaat tgtggctgcg     840
ggatgtacgt tcacttctgc agttattgga ttgtggactt tctgcaacag agtataa        897
```

<210> 131
<211> 298
<212> PRT
<213> Chlamydia

<400> 131

```
Met Ala Ala Ile Cys Gly Arg Leu Gly Ser Gly Thr Gly Asn Ala Leu
 1               5                  10                  15
Lys Ala Phe Phe Thr Gln Pro Ser Asn Lys Met Ala Arg Val Val Asn
            20                  25                  30
Lys Thr Lys Gly Met Asp Lys Thr Val Lys Val Ala Lys Ser Ala Ala
        35                  40                  45
Glu Leu Thr Ala Asn Ile Leu Glu Gln Ala Gly Gly Ala Gly Ser Ser
    50                  55                  60
Ala His Ile Thr Ala Ser Gln Val Ser Lys Gly Leu Gly Asp Ala Arg
65                  70                  75                  80
Thr Val Leu Ala Leu Gly Asn Ala Phe Asn Gly Ala Leu Pro Gly Thr
                85                  90                  95
Val Gln Ser Ala Gln Ser Phe Phe Ser Tyr Met Lys Ala Ala Ser Gln
            100                 105                 110
Lys Pro Gln Glu Gly Asp Glu Gly Leu Val Ala Asp Leu Cys Val Ser
        115                 120                 125
His Lys Arg Arg Ala Ala Ala Ala Val Cys Ser Phe Ile Gly Gly Ile
    130                 135                 140
Thr Tyr Leu Ala Thr Phe Gly Ala Ile Arg Pro Ile Leu Phe Val Asn
```

```
145                 150                 155                 160
Lys Met Leu Ala Gln Pro Phe Leu Ser Ser Gln Thr Lys Ala Asn Met
                165                 170                 175
Gly Ser Ser Val Ser Tyr Ile Met Ala Ala Asn His Ala Ala Phe Val
            180                 185                 190
Val Gly Ser Gly Leu Ala Ile Ser Ala Glu Arg Ala Asp Cys Glu Ala
        195                 200                 205
Arg Cys Ala Arg Ile Ala Arg Glu Glu Ser Ser Leu Glu Leu Ser Gly
    210                 215                 220
Glu Glu Asn Ala Cys Glu Arg Gly Val Ala Gly Glu Lys Ala Lys Thr
225                 230                 235                 240
Phe Thr Arg Ile Lys Tyr Ala Leu Leu Thr Met Leu Glu Lys Phe Leu
                245                 250                 255
Glu Cys Val Ala Asp Val Phe Lys Leu Val Pro Leu Pro Ile Thr Met
            260                 265                 270
Gly Ile Arg Ala Ile Val Ala Ala Gly Cys Thr Phe Thr Ser Ala Val
        275                 280                 285
Ile Gly Leu Trp Thr Phe Cys Asn Arg Val
    290                 295
```

<210> 132
<211> 897
<212> DNA
<213> Chlamydia

<400> 132

```
atggctgcta tatgcggacg tttagggtct ggtacaggga atgctctaaa agctttttt      60
acacagccca gcaataaaat ggcaagggta gtaaataaga cgaagggaat ggataagact     120
gttaaggtcg ccaagtctgc tgccgaattg accgcaaata ttttggaaca agctggaggc     180
gcgggctctt ccgcacacat tacagcttcc caagtgtcca aaggattagg ggatgcgaga     240
actgttctcg ctttagggaa tgcctttaac ggagcgttgc caggaacagt tcaaagtgcg     300
caaagcttct tctcttacat gaaagctgct agtcagaaac cgcaagaagg ggatgagggg     360
ctcgtagcag atctttgtgt gtctcataag cgcagagcgg ctgcggctgt ctgtagcttc     420
atcggaggaa ttacctacct cgcgacattc ggagctatcc gtccgattct gtttgtcaac     480
aaaatgctgg cgcaaccgtt tctttcttcc caaactaaag caaatatggg atcttctgtt     540
agctatatta tggcggctaa ccatgcagcg tttgtggtgg gttctggact cgctatcagt     600
gcggaaagag cagattgcga agcccgctgc gctcgtattg cgagagaaga gtcgtcactc     660
gaattgtcgg gagaggaaaa tgcttgtgag aggagagtcg ctggagagaa agccaagacg     720
ttcacgcgca tcaagtatgc actcctcact atgctcgaga agtttttgga atgcgttgcc     780
gacgttttca aattggtgcc gttgcctatt acaatgggta ttcgtgcaat tgtggctgcg     840
ggatgtacgt tcacttctgc agttattgga ttgtggactt tctgcaacag agtataa        897
```

<210> 133
<211> 298
<212> PRT
<213> Chlamydia

<400> 133

```
Met Ala Ala Ile Cys Gly Arg Leu Gly Ser Gly Thr Gly Asn Ala Leu
 1               5                  10                  15
Lys Ala Phe Phe Thr Gln Pro Ser Asn Lys Met Ala Arg Val Val Asn
            20                  25                  30
Lys Thr Lys Gly Met Asp Lys Thr Val Lys Val Ala Lys Ser Ala Ala
        35                  40                  45
Glu Leu Thr Ala Asn Ile Leu Glu Gln Ala Gly Gly Ala Gly Ser Ser
    50                  55                  60
Ala His Ile Thr Ala Ser Gln Val Ser Lys Gly Leu Gly Asp Ala Arg
```

```
65                  70                  75                  80
Thr Val Leu Ala Leu Gly Asn Ala Phe Asn Gly Ala Leu Pro Gly Thr
                85                  90                  95
Val Gln Ser Ala Gln Ser Phe Phe Ser Tyr Met Lys Ala Ala Ser Gln
            100                 105                 110
Lys Pro Gln Glu Gly Asp Glu Gly Leu Val Ala Asp Leu Cys Val Ser
        115                 120                 125
His Lys Arg Arg Ala Ala Ala Ala Val Cys Ser Phe Ile Gly Gly Ile
    130                 135                 140
Thr Tyr Leu Ala Thr Phe Gly Ala Ile Arg Pro Ile Leu Phe Val Asn
145                 150                 155                 160
Lys Met Leu Ala Gln Pro Phe Leu Ser Ser Gln Thr Lys Ala Asn Met
                165                 170                 175
Gly Ser Ser Val Ser Tyr Ile Met Ala Ala Asn His Ala Ala Phe Val
            180                 185                 190
Val Gly Ser Gly Leu Ala Ile Ser Ala Glu Arg Ala Asp Cys Glu Ala
        195                 200                 205
Arg Cys Ala Arg Ile Ala Arg Glu Glu Ser Ser Leu Glu Leu Ser Gly
    210                 215                 220
Glu Glu Asn Ala Cys Glu Arg Arg Val Ala Gly Glu Lys Ala Lys Thr
225                 230                 235                 240
Phe Thr Arg Ile Lys Tyr Ala Leu Leu Thr Met Leu Glu Lys Phe Leu
                245                 250                 255
Glu Cys Val Ala Asp Val Phe Lys Leu Val Pro Leu Pro Ile Thr Met
            260                 265                 270
Gly Ile Arg Ala Ile Val Ala Ala Gly Cys Thr Phe Thr Ser Ala Val
        275                 280                 285
Ile Gly Leu Trp Thr Phe Cys Asn Arg Val
    290                 295
```

<210> 134
<211> 897
<212> DNA
<213> Chlamydia

<400> 134

```
atggcttcta tatgcggacg tttagggtct ggtacaggga atgctctaaa agctttttt      60
acacagccca acaataaaat ggcaagggta gtaaataaga cgaagggaat ggataagact     120
attaaggttg ccaagtctgc tgccgaattg accgcaaata ttttggaaca agctggaggc     180
gcgggctctt ccgcacacat tacagcttcc caagtgtcca aaggattagg ggatgcgaga     240
actgttgtcg ctttagggaa tgcctttaac ggagcgttgc caggaacagt tcaaagtgcg     300
caaagcttct tctctcacat gaaagctgct agtcagaaaa cgcaagaagg ggatgagggg     360
ctcacagcag atctttgtgt gtctcataag cgcagagcgg ctgcggctgt ctgtagcatc     420
atcggaggaa ttacctacct cgcgacattc ggagctatcc gtccgattct gtttgtcaac     480
aaaatgctgg caaaaccgtt tctttcttcc caaactaaag caaatatggg atcttctgtt     540
agctatatta tggcggctaa ccatgcagcg tctgtggtgg gtgctggact cgctatcagt     600
gcggaaagag cagattgcga agcccgctgc gctcgtattg cgagagaaga gtcgttactc     660
gaaatgccgg gagaggaaaa tgcttgcgag aagaaagtcg ctggagagaa agccaagacg     720
ttcacgcgca tcaagtatgc actcctcact atgctcgaga agtttttgga atgcgttgcc     780
gacgttttca aattggtgcc gctgcctatt acaatgggta ttcgtgcgat tgtggctgct     840
ggatgtacgt tcacttctgc aattattgga ttgtgcactt tctgcgccag agcataa        897
```

<210> 135
<211> 298
<212> PRT
<213> Chlamydia

<400> 135

```
Met Ala Ser Ile Cys Gly Arg Leu Gly Ser Gly Thr Gly Asn Ala Leu
 1               5                  10                  15
Lys Ala Phe Phe Thr Gln Pro Asn Asn Lys Met Ala Arg Val Val Asn
            20                  25                  30
Lys Thr Lys Gly Met Asp Lys Thr Ile Lys Val Ala Lys Ser Ala Ala
        35                  40                  45
Glu Leu Thr Ala Asn Ile Leu Glu Gln Ala Gly Gly Ala Gly Ser Ser
    50                  55                  60
Ala His Ile Thr Ala Ser Gln Val Ser Lys Gly Leu Gly Asp Ala Arg
65                  70                  75                  80
Thr Val Val Ala Leu Gly Asn Ala Phe Asn Gly Ala Leu Pro Gly Thr
                85                  90                  95
Val Gln Ser Ala Gln Ser Phe Phe Ser His Met Lys Ala Ala Ser Gln
            100                 105                 110
Lys Thr Gln Glu Gly Asp Glu Gly Leu Thr Ala Asp Leu Cys Val Ser
        115                 120                 125
His Lys Arg Arg Ala Ala Ala Ala Val Cys Ser Ile Ile Gly Gly Ile
    130                 135                 140
Thr Tyr Leu Ala Thr Phe Gly Ala Ile Arg Pro Ile Leu Phe Val Asn
145                 150                 155                 160
Lys Met Leu Ala Lys Pro Phe Leu Ser Ser Gln Thr Lys Ala Asn Met
                165                 170                 175
Gly Ser Ser Val Ser Tyr Ile Met Ala Ala Asn His Ala Ala Ser Val
            180                 185                 190
Val Gly Ala Gly Leu Ala Ile Ser Ala Glu Arg Ala Asp Cys Glu Ala
        195                 200                 205
Arg Cys Ala Arg Ile Ala Arg Glu Glu Ser Leu Leu Glu Met Pro Gly
    210                 215                 220
Glu Glu Asn Ala Cys Glu Lys Lys Val Ala Gly Glu Lys Ala Lys Thr
225                 230                 235                 240
Phe Thr Arg Ile Lys Tyr Ala Leu Leu Thr Met Leu Glu Lys Phe Leu
                245                 250                 255
Glu Cys Val Ala Asp Val Phe Lys Leu Val Pro Leu Pro Ile Thr Met
            260                 265                 270
Gly Ile Arg Ala Ile Val Ala Ala Gly Cys Thr Phe Thr Ser Ala Ile
        275                 280                 285
Ile Gly Leu Cys Thr Phe Cys Ala Arg Ala
    290                 295
```

<210> 136
<211> 882
<212> DNA
<213> Chlamydia

<400> 136

```
atggcttctg tatgtgggcg attaagtgct ggggtgggga acagatttaa cgcatttttc      60
acgcgtcccg gtaacaagct atcacggttt gtaaatagcg caaaaggatt agacagatca     120
ataaaggttg ggaagtctgc tgctgaatta acggcgagta ttttagagca aactgggggg     180
gcagggactg atgcacatgt tacggcggcc aaggtgtcta aagcacttgg ggacgcgcga     240
acagtaatgg ctctagggaa tgtcttcaat gggtctgtgc cagcaaccat tcaaagtgcg     300
cgaagctgtc tcgcccattt acgagcggcc ggcaaagaag aagaaacatg ctccaaggtg     360
aaagatctct gtgtttctca tagacgaaga gctgcggctg aggcttgtaa tgttattgga     420
ggagcaactt atattacaac tttcggagcg attcgtccga cattactcgt taacaagctt     480
cttgccaaac cattcctttc ctcccaagcc aaagaagggt tgggagcttc tgttggttat     540
atcatggcag cgaaccatgc ggcatctgtg cttgggtctg ctttaagtat tagcgcagaa     600
agagcagact gtgaagagcg gtgtgatcgc attcgatgta gtgaggatgg tgaaatttgc     660
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gaaggcaata aattaacagc tatttcggaa gagaaggcta gatcatggac tctcattaag 720
tacagattcc ttactatgat agaaaaacta tttgagatgg tggcggatat cttcaagtta 780
attcctttgc caatttcgca tggaattcgt gctattgttg ctgcgggatg tacgttgact 840
tctgcagtta ttggcttagg tacttttgg tctagagcat aa 882

<210> 137
<211> 293
<212> PRT
<213> Chlamydia

<400> 137

```
Met Ala Ser Val Cys Gly Arg Leu Ser Ala Gly Val Gly Asn Arg Phe
 1               5                  10                  15
Asn Ala Phe Phe Thr Arg Pro Gly Asn Lys Leu Ser Arg Phe Val Asn
            20                  25                  30
Ser Ala Lys Gly Leu Asp Arg Ser Ile Lys Val Gly Lys Ser Ala Ala
        35                  40                  45
Glu Leu Thr Ala Ser Ile Leu Glu Gln Thr Gly Gly Ala Gly Thr Asp
    50                  55                  60
Ala His Val Thr Ala Ala Lys Val Ser Lys Ala Leu Gly Asp Ala Arg
65                  70                  75                  80
Thr Val Met Ala Leu Gly Asn Val Phe Asn Gly Ser Val Pro Ala Thr
                85                  90                  95
Ile Gln Ser Ala Arg Ser Cys Leu Ala His Leu Arg Ala Ala Gly Lys
            100                 105                 110
Glu Glu Glu Thr Cys Ser Lys Val Lys Asp Leu Cys Val Ser His Arg
        115                 120                 125
Arg Arg Ala Ala Ala Glu Ala Cys Asn Val Ile Gly Gly Ala Thr Tyr
    130                 135                 140
Ile Thr Thr Phe Gly Ala Ile Arg Pro Thr Leu Leu Val Asn Lys Leu
145                 150                 155                 160
Leu Ala Lys Pro Phe Leu Ser Ser Gln Ala Lys Glu Gly Leu Gly Ala
                165                 170                 175
Ser Val Gly Tyr Ile Met Ala Ala Asn His Ala Ala Ser Val Leu Gly
            180                 185                 190
Ser Ala Leu Ser Ile Ser Ala Glu Arg Ala Asp Cys Glu Glu Arg Cys
        195                 200                 205
Asp Arg Ile Arg Cys Ser Glu Asp Gly Glu Ile Cys Glu Gly Asn Lys
    210                 215                 220
Leu Thr Ala Ile Ser Glu Glu Lys Ala Arg Ser Trp Thr Leu Ile Lys
225                 230                 235                 240
Tyr Arg Phe Leu Thr Met Ile Glu Lys Leu Phe Glu Met Val Ala Asp
                245                 250                 255
Ile Phe Lys Leu Ile Pro Leu Pro Ile Ser His Gly Ile Arg Ala Ile
            260                 265                 270
Val Ala Ala Gly Cys Thr Leu Thr Ser Ala Val Ile Gly Leu Gly Thr
        275                 280                 285
Phe Trp Ser Arg Ala
    290
```

<210> 138
<211> 16
<212> PRT
<213> Artificial Sequence

<220>
<223> Made in a lab

<400> 138
Asp Leu Cys Val Ser His Lys Arg Arg Ala Ala Ala Ala Val Cys Ser
1 5 10 15

<210> 139
<211> 16
<212> PRT
<213> Artificial Sequence

<220>
<223> Made in a lab

<400> 139
Arg Ala Ala Ala Ala Val Cys Ser Phe Ile Gly Gly Ile Thr Tyr Leu
1 5 10 15

<210> 140
<211> 18
<212> PRT
<213> Artificial Sequence

<220>
<223> Made in a lab

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Cys Ser Phe Ile Gly Gly Ile Thr Tyr Leu Ala Thr Phe Gly Ala Ile
1 5 10 15
Arg Pro

<210> 141
<211> 18
<212> PRT
<213> Artificial Sequence

<220>
<223> Made in a lab

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Tyr Leu Ala Thr Phe Gly Ala Ile Arg Pro Ile Leu Phe Val Asn Lys
1 5 10 15
Met Leu

<210> 142
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<213> Artificial Sequence

<220>
<223> Made in a lab

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Arg Pro Ile Leu Phe Val Asn Lys Met Leu Ala Gln Pro Phe Leu Ser
1 5 10 15
Ser Gln

<210> 143
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> Made in a lab

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Met Leu Ala Gln Pro Phe Leu Ser Ser Gln Thr Lys Ala Asn Met Gly
1 5 10 15
Ser

<210> 144
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> Made in a lab

<400> 144
Cys Ser Phe Ile Gly Gly Ile Thr Tyr Leu
1 5 10

<210> 145
<211> 9
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<220>
<223> Made in a lab

<400> 145
Ser Phe Ile Gly Gly Ile Thr Tyr Leu
1 5

<210> 146
<211> 8
<212> PRT
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<400> 146
Phe Ile Gly Gly Ile Thr Tyr Leu
1 5

<210> 147
<211> 9
<212> PRT
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<223> Made in a lab

<400> 147
Cys Ser Phe Ile Gly Gly Ile Thr Tyr
1 5

<210> 148
<211> 8
<212> PRT
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<220>
<223> Made in a lab

<400> 148
Cys Ser Phe Ile Gly Gly Ile Thr
1 5

<210> 149
<211> 10
<212> PRT
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<220>
<223> Made in a lab

<400> 149
Cys Ser Ile Ile Gly Gly Ile Thr Tyr Leu
1 5 10

<210> 150
<211> 10
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<400> 150
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1 5 10

<210> 151
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
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<400> 151
Gly Phe Ile Gly Gly Ile Thr Tyr Leu
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<210> 152
<211> 20

<212> PRT
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<220>
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<400> 152
Gln Ile Phe Val Cys Leu Ile Ser Ala Glu Arg Leu Arg Leu Arg Leu
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Ser Val Ala Ser
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<210> 153
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> Made in a lab

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Thr Ser Arg His
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<210> 154
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> Made in a lab

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Ala Ser Ser Glu Glu Leu Pro Thr Ser Arg His Ser Glu Leu Ser Val
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Arg Phe Cys Leu
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<210> 155
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> Made in a lab

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Arg Asn Arg Phe
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<210> 156
<211> 20
<212> PRT

<213> Artificial Sequence

<220>
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<211> 53
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Phe Cys Leu Ser Thr Lys Cys Trp Arg Asn Arg Phe Phe Leu Pro Lys
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Leu Lys Gln Ile Trp
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<210> 158
<211> 52
<212> PRT
<213> Artificial Sequence

<220>
<223> Made in a lab

<400> 158
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Ile Gly Gly Ile Thr Tyr Leu Ala Thr Phe Gly Ala Ile Arg Pro Ile
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Lys Ala Asn Met
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<210> 159
<211> 24
<212> DNA
<213> Chlamydia

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<210> 160
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<212> DNA
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<400> 160
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<212> DNA
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<400> 161
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<210> 162
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<212> DNA
<213> Chlamydia

<400> 162
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<400> 163
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<210> 164
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<400> 164
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<210> 165
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<212> DNA
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<400> 165
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<210> 166
<211> 20
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<213> Chlamydia

<400> 166
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<210> 167
<211> 9
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<213> Artificial Sequence

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<400> 167
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<210> 168
<211> 9
<212> PRT
<213> Artificial Sequence

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<400> 168
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<210> 169
<211> 2643
<212> DNA
<213> Chlamydia

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aatcatgtcg tctgtacatt ttttgaggac tgtaccatgg agagcctctt tcctgctctt 180
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<212> DNA
<213> Chlamydia

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<211> 2895
<212> DNA
<213> Chlamydia

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gaaggagcta tcatgaactg taatattctt atgtataata agcttgcatt agcctacatg    5040
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ggtcaagtta tctgcggagt gccaactaga acctctgcta gagcagaata cagtactcaa    5160
ctatatcttg gtcccttctg gactctctac ggaaactata ctatcgatgt aggcatgtat    5220
acgctatcgc aaatgactag ctgcggtgct cgcatgatct tctaa                    5265
```

<210> 175
<211> 880
<212> PRT
<213> Chlamydia

<220>
<221> VARIANT
<222> (1)...(880)
<223> Xaa = Any Amino Acid

<400> 175

```
Ala Ile Met Arg Pro Asp His Met Asn Phe Cys Cys Leu Cys Ala Ala
 1               5                  10                  15
Ile Leu Ser Ser Thr Ala Val Leu Phe Gly Gln Asp Pro Leu Gly Glu
            20                  25                  30
Thr Ala Leu Leu Thr Lys Asn Pro Asn His Val Val Cys Thr Phe Phe
        35                  40                  45
Glu Asp Cys Thr Met Glu Ser Leu Phe Pro Ala Leu Cys Ala His Ala
    50                  55                  60
Ser Gln Asp Asp Pro Leu Tyr Val Leu Gly Asn Ser Tyr Cys Trp Phe
65                  70                  75                  80
Val Ser Lys Leu His Ile Thr Asp Pro Lys Glu Ala Leu Phe Lys Glu
                85                  90                  95
Lys Gly Asp Leu Ser Ile Gln Asn Phe Arg Phe Leu Ser Phe Thr Asp
            100                 105                 110
Cys Ser Ser Lys Glu Ser Ser Pro Ser Ile Ile His Gln Lys Asn Gly
        115                 120                 125
Gln Leu Ser Leu Arg Asn Asn Gly Ser Met Ser Phe Cys Arg Asn His
    130                 135                 140
Ala Glu Gly Ser Gly Gly Ala Ile Ser Ala Asp Ala Phe Ser Leu Gln
145                 150                 155                 160
His Asn Tyr Leu Phe Thr Ala Phe Glu Glu Asn Ser Ser Lys Gly Asn
                165                 170                 175
Gly Gly Ala Ile Gln Ala Gln Thr Phe Ser Leu Ser Arg Asn Val Ser
            180                 185                 190
Pro Ile Ser Phe Ala Arg Asn Arg Ala Asp Leu Asn Gly Gly Ala Ile
        195                 200                 205
Cys Cys Ser Asn Leu Ile Cys Ser Gly Asn Val Asn Pro Leu Phe Phe
    210                 215                 220
Thr Gly Asn Ser Ala Thr Asn Gly Gly Ala Ile Cys Cys Ile Ser Asp
225                 230                 235                 240
Leu Asn Thr Ser Glu Lys Gly Ser Leu Ser Leu Ala Cys Asn Gln Glu
                245                 250                 255
Thr Leu Phe Ala Ser Asn Ser Ala Lys Glu Lys Gly Gly Ala Ile Tyr
            260                 265                 270
Ala Lys His Met Val Leu Arg Tyr Asn Gly Pro Val Ser Phe Ile Asn
        275                 280                 285
Asn Ser Ala Lys Ile Gly Gly Ala Ile Ala Ile Gln Ser Gly Gly Ser
```

```
    290                 295                 300
Leu Ser Ile Leu Ala Gly Glu Gly Ser Val Leu Phe Gln Asn Asn Ser
305                 310                 315                 320
Gln Arg Thr Ser Asp Gln Gly Leu Val Arg Asn Ala Ile Tyr Leu Xaa
                325                 330                 335
Lys Asp Ala Ile Leu Ser Ser Leu Glu Ala Arg Asn Gly Asp Ile Leu
            340                 345                 350
Phe Phe Asp Pro Ile Val Gln Glu Ser Ser Ser Lys Glu Ser Pro Leu
        355                 360                 365
Pro Ser Ser Leu Gln Ala Ser Val Thr Ser Pro Thr Pro Ala Thr Ala
    370                 375                 380
Ser Pro Leu Val Ile Gln Thr Ser Ala Asn Arg Ser Val Ile Phe Ser
385                 390                 395                 400
Ser Glu Arg Leu Ser Glu Glu Glu Lys Thr Pro Asp Asn Leu Thr Ser
                405                 410                 415
Gln Leu Gln Gln Pro Ile Glu Leu Lys Ser Gly Arg Leu Val Leu Lys
            420                 425                 430
Asp Arg Ala Val Leu Ser Ala Pro Ser Leu Ser Gln Asp Pro Gln Ala
        435                 440                 445
Leu Leu Ile Met Glu Ala Gly Thr Ser Leu Lys Thr Ser Ser Asp Leu
    450                 455                 460
Lys Leu Ala Thr Leu Ser Ile Pro Leu His Ser Leu Asp Thr Glu Lys
465                 470                 475                 480
Ser Val Thr Ile His Ala Pro Asn Leu Ser Ile Gln Lys Ile Phe Leu
                485                 490                 495
Ser Asn Ser Gly Asp Glu Asn Phe Tyr Glu Asn Val Glu Leu Leu Ser
            500                 505                 510
Lys Glu Gln Asn Asn Ile Pro Leu Leu Thr Leu Pro Lys Glu Gln Ser
        515                 520                 525
His Leu His Leu Pro Asp Gly Asn Leu Ser Ser His Phe Gly Tyr Gln
    530                 535                 540
Gly Asp Trp Thr Phe Ser Trp Lys Asp Ser Asp Glu Gly His Ser Leu
545                 550                 555                 560
Ile Ala Asn Trp Thr Pro Lys Asn Tyr Val Pro His Pro Glu Arg Gln
                565                 570                 575
Ser Thr Leu Val Ala Asn Thr Leu Trp Asn Thr Tyr Ser Asp Met Gln
            580                 585                 590
Ala Val Gln Ser Met Ile Asn Thr Thr Ala His Gly Gly Ala Tyr Leu
        595                 600                 605
Phe Gly Thr Trp Gly Ser Ala Val Ser Asn Leu Phe Tyr Val His Asp
    610                 615                 620
Ser Ser Gly Lys Pro Ile Asp Asn Trp His His Arg Ser Leu Gly Tyr
625                 630                 635                 640
Leu Phe Gly Ile Ser Thr His Ser Leu Asp Asp His Ser Phe Cys Leu
                645                 650                 655
Ala Ala Gly Gln Leu Leu Gly Lys Ser Ser Asp Ser Phe Ile Thr Ser
            660                 665                 670
Thr Glu Thr Thr Ser Tyr Ile Ala Thr Val Gln Ala Gln Leu Ala Thr
        675                 680                 685
Ser Leu Met Lys Ile Ser Ala Gln Ala Cys Tyr Asn Glu Ser Ile His
    690                 695                 700
Glu Leu Lys Thr Lys Tyr Arg Ser Phe Ser Lys Glu Gly Phe Gly Ser
705                 710                 715                 720
Trp His Ser Val Ala Val Ser Gly Glu Val Cys Ala Ser Ile Pro Ile
                725                 730                 735
Val Ser Asn Gly Ser Gly Leu Phe Ser Ser Phe Ser Ile Phe Ser Lys
            740                 745                 750
```

```
Leu Gln Gly Phe Ser Gly Thr Gln Asp Gly Phe Glu Glu Ser Ser Gly
        755                 760                 765
Glu Ile Arg Ser Phe Ser Ala Ser Ser Phe Arg Asn Ile Ser Leu Pro
    770                 775                 780
Ile Gly Ile Thr Phe Glu Lys Lys Ser Gln Lys Thr Arg Thr Tyr Tyr
785                 790                 795                 800
Tyr Phe Leu Gly Ala Tyr Ile Gln Asp Leu Lys Arg Asp Val Glu Ser
                805                 810                 815
Gly Pro Val Val Leu Leu Lys Asn Ala Val Ser Trp Asp Ala Pro Met
            820                 825                 830
Ala Asn Leu Asp Ser Arg Ala Tyr Met Phe Arg Leu Thr Asn Gln Arg
        835                 840                 845
Ala Leu His Arg Leu Gln Thr Leu Leu Asn Val Ser Cys Val Leu Arg
    850                 855                 860
Gly Gln Ser His Ser Tyr Ser Leu Asp Leu Gly Thr Thr Tyr Arg Phe
865                 870                 875                 880

<210> 176
<211> 982
<212> PRT
<213> Chlamydia

<220>
<221> VARIANT
<222> (1)...(982)
<223> Xaa = Any Amino Acid

<400> 176
Met Ile Pro Gln Gly Ile Tyr Asp Gly Glu Thr Leu Thr Val Ser Phe
 1               5                  10                  15
Pro Tyr Thr Val Ile Gly Asp Pro Ser Gly Thr Thr Val Phe Ser Ala
            20                  25                  30
Gly Glu Leu Thr Leu Lys Asn Leu Asp Asn Ser Ile Ala Ala Leu Pro
        35                  40                  45
Leu Ser Cys Phe Gly Asn Leu Leu Gly Ser Phe Thr Val Leu Gly Arg
    50                  55                  60
Gly His Ser Leu Thr Phe Glu Asn Ile Arg Thr Ser Thr Asn Gly Ala
65                  70                  75                  80
Ala Leu Ser Asn Ser Ala Ala Asp Gly Leu Phe Thr Ile Glu Gly Phe
                85                  90                  95
Lys Glu Leu Ser Phe Ser Asn Cys Asn Ser Leu Leu Ala Val Leu Pro
            100                 105                 110
Ala Ala Thr Thr Asn Lys Gly Ser Gln Thr Pro Thr Thr Thr Ser Thr
        115                 120                 125
Pro Ser Asn Gly Thr Ile Tyr Ser Lys Thr Asp Leu Leu Leu Leu Asn
    130                 135                 140
Asn Glu Lys Phe Ser Phe Tyr Ser Asn Leu Val Ser Gly Asp Gly Gly
145                 150                 155                 160
Ala Ile Asp Ala Lys Ser Leu Thr Val Gln Gly Ile Ser Lys Leu Cys
                165                 170                 175
Val Phe Gln Glu Asn Thr Ala Gln Ala Asp Gly Gly Ala Cys Gln Val
            180                 185                 190
Val Thr Ser Phe Ser Ala Met Ala Asn Glu Ala Pro Ile Ala Phe Val
        195                 200                 205
Ala Asn Val Ala Gly Val Arg Gly Gly Gly Ile Ala Ala Val Gln Asp
    210                 215                 220
Gly Gln Gln Gly Val Ser Ser Ser Thr Ser Thr Glu Asp Pro Val Val
```

```
225                 230                 235                 240
Ser Phe Ser Arg Asn Thr Ala Val Glu Phe Asp Gly Asn Val Ala Arg
                245                 250                 255
Val Gly Gly Gly Ile Tyr Ser Tyr Gly Asn Val Ala Phe Leu Asn Asn
            260                 265                 270
Gly Lys Thr Leu Phe Leu Asn Asn Val Ala Ser Pro Val Tyr Ile Ala
        275                 280                 285
Ala Lys Gln Pro Thr Ser Gly Gln Ala Ser Asn Thr Ser Asn Asn Tyr
    290                 295                 300
Gly Asp Gly Gly Ala Ile Phe Cys Lys Asn Gly Ala Gln Ala Gly Ser
305                 310                 315                 320
Asn Asn Ser Gly Ser Val Ser Phe Asp Gly Glu Gly Val Val Phe Phe
                325                 330                 335
Ser Ser Asn Val Ala Ala Gly Lys Gly Gly Ala Ile Tyr Ala Lys Lys
            340                 345                 350
Leu Ser Val Ala Asn Cys Gly Pro Val Gln Phe Leu Arg Asn Ile Ala
        355                 360                 365
Asn Asp Gly Gly Ala Ile Tyr Leu Gly Glu Ser Gly Glu Leu Ser Leu
    370                 375                 380
Ser Ala Asp Tyr Gly Asp Ile Ile Phe Asp Gly Asn Leu Lys Arg Thr
385                 390                 395                 400
Ala Lys Glu Asn Ala Ala Asp Val Asn Gly Val Thr Val Ser Ser Gln
                405                 410                 415
Ala Ile Ser Met Gly Ser Gly Gly Lys Ile Thr Thr Leu Arg Ala Lys
            420                 425                 430
Ala Gly His Gln Ile Leu Phe Asn Asp Pro Ile Glu Met Ala Asn Gly
        435                 440                 445
Asn Asn Gln Pro Ala Gln Ser Ser Lys Leu Leu Lys Ile Asn Asp Gly
    450                 455                 460
Glu Gly Tyr Thr Gly Asp Ile Val Phe Ala Asn Gly Ser Ser Thr Leu
465                 470                 475                 480
Tyr Gln Asn Val Thr Ile Glu Gln Gly Arg Ile Val Leu Arg Glu Lys
                485                 490                 495
Ala Lys Leu Ser Val Asn Ser Leu Ser Gln Thr Gly Gly Ser Leu Tyr
            500                 505                 510
Met Glu Ala Gly Ser Thr Leu Asp Phe Val Thr Pro Gln Pro Pro Gln
        515                 520                 525
Gln Pro Pro Ala Ala Asn Gln Leu Ile Thr Leu Ser Asn Leu His Leu
    530                 535                 540
Ser Leu Ser Ser Leu Leu Ala Asn Asn Ala Val Thr Asn Pro Pro Thr
545                 550                 555                 560
Asn Pro Pro Ala Gln Asp Ser His Pro Ala Val Ile Gly Ser Thr Thr
                565                 570                 575
Ala Gly Ser Val Thr Ile Ser Gly Pro Ile Phe Phe Glu Asp Leu Asp
            580                 585                 590
Asp Thr Ala Tyr Asp Arg Tyr Asp Trp Leu Gly Ser Asn Gln Lys Ile
        595                 600                 605
Asn Val Leu Lys Leu Gln Leu Gly Thr Lys Pro Pro Ala Asn Ala Pro
    610                 615                 620
Ser Asp Leu Thr Leu Gly Asn Glu Met Pro Lys Tyr Gly Tyr Gln Gly
625                 630                 635                 640
Ser Trp Lys Leu Ala Trp Asp Pro Asn Thr Ala Asn Asn Gly Pro Tyr
                645                 650                 655
Thr Leu Lys Ala Thr Trp Thr Lys Thr Gly Tyr Asn Pro Gly Pro Glu
            660                 665                 670
Arg Val Ala Ser Leu Val Pro Asn Ser Leu Trp Gly Ser Ile Leu Asp
        675                 680                 685
```

```
Ile Arg Ser Ala His Ser Ala Ile Gln Ala Ser Val Asp Gly Arg Ser
    690                 695                 700
Tyr Cys Arg Gly Leu Trp Val Ser Gly Val Ser Asn Phe Phe Tyr His
705                 710                 715                 720
Asp Arg Asp Ala Leu Gly Gln Gly Tyr Arg Tyr Ile Ser Gly Gly Tyr
                725                 730                 735
Ser Leu Gly Ala Asn Ser Tyr Phe Gly Ser Ser Met Phe Gly Leu Ala
            740                 745                 750
Phe Thr Glu Val Phe Gly Arg Ser Lys Asp Tyr Val Val Cys Arg Ser
        755                 760                 765
Asn His His Ala Cys Ile Gly Ser Val Tyr Leu Ser Thr Gln Gln Ala
    770                 775                 780
Leu Cys Gly Ser Tyr Leu Phe Gly Asp Ala Phe Ile Arg Ala Ser Tyr
785                 790                 795                 800
Gly Phe Gly Asn Gln His Met Lys Thr Ser Tyr Thr Phe Ala Glu Glu
                805                 810                 815
Ser Asp Val Arg Trp Asp Asn Asn Cys Leu Ala Gly Glu Ile Gly Ala
            820                 825                 830
Gly Leu Pro Ile Val Ile Thr Pro Ser Lys Leu Tyr Leu Asn Glu Leu
        835                 840                 845
Arg Pro Phe Val Gln Ala Glu Phe Ser Tyr Ala Asp His Glu Ser Phe
    850                 855                 860
Thr Glu Glu Gly Asp Gln Ala Arg Ala Phe Lys Ser Gly His Leu Leu
865                 870                 875                 880
Asn Leu Ser Val Pro Val Gly Val Lys Phe Asp Arg Cys Ser Ser Thr
                885                 890                 895
His Pro Asn Lys Tyr Ser Phe Met Ala Ala Tyr Ile Cys Asp Ala Tyr
            900                 905                 910
Arg Thr Ile Ser Gly Thr Glu Thr Thr Leu Leu Ser His Gln Glu Thr
        915                 920                 925
Trp Thr Thr Asp Ala Phe His Leu Ala Arg His Gly Val Val Val Arg
    930                 935                 940
Gly Ser Met Tyr Ala Ser Leu Thr Ser Asn Ile Glu Val Tyr Gly His
945                 950                 955                 960
Gly Arg Tyr Glu Tyr Arg Asp Ala Ser Arg Gly Tyr Gly Leu Ser Ala
                965                 970                 975
Gly Ser Lys Val Xaa Phe
            980
```

<210> 177
<211> 964
<212> PRT
<213> Chlamydia

```
<400> 177
Met Lys Lys Ala Phe Phe Phe Phe Leu Ile Gly Asn Ser Leu Ser Gly
 1                5                  10                  15
Leu Ala Arg Glu Val Pro Ser Arg Ile Phe Leu Met Pro Asn Ser Val
            20                  25                  30
Pro Asp Pro Thr Lys Glu Ser Leu Ser Asn Lys Ile Ser Leu Thr Gly
        35                  40                  45
Asp Thr His Asn Leu Thr Asn Cys Tyr Leu Asp Asn Leu Arg Tyr Ile
    50                  55                  60
Leu Ala Ile Leu Gln Lys Thr Pro Asn Glu Gly Ala Ala Val Thr Ile
65                  70                  75                  80
Thr Asp Tyr Leu Ser Phe Phe Asp Thr Gln Lys Glu Gly Ile Tyr Phe
                85                  90                  95
```

```
Ala Lys Asn Leu Thr Pro Glu Ser Gly Gly Ala Ile Gly Tyr Ala Ser
            100                 105                 110
Pro Asn Ser Pro Thr Val Glu Ile Arg Asp Thr Ile Gly Pro Val Ile
        115                 120                 125
Phe Glu Asn Asn Thr Cys Cys Arg Leu Phe Thr Trp Arg Asn Pro Tyr
    130                 135                 140
Ala Ala Asp Lys Ile Arg Glu Gly Gly Ala Ile His Ala Gln Asn Leu
145                 150                 155                 160
Tyr Ile Asn His Asn His Asp Val Val Gly Phe Met Lys Asn Phe Ser
                165                 170                 175
Tyr Val Gln Gly Gly Ala Ile Ser Thr Ala Asn Thr Phe Val Val Ser
            180                 185                 190
Glu Asn Gln Ser Cys Phe Leu Phe Met Asp Asn Ile Cys Ile Gln Thr
        195                 200                 205
Asn Thr Ala Gly Lys Gly Gly Ala Ile Tyr Ala Gly Thr Ser Asn Ser
    210                 215                 220
Phe Glu Ser Asn Asn Cys Asp Leu Phe Phe Ile Asn Asn Ala Cys Cys
225                 230                 235                 240
Ala Gly Gly Ala Ile Phe Ser Pro Ile Cys Ser Leu Thr Gly Asn Arg
                245                 250                 255
Gly Asn Ile Val Phe Tyr Asn Asn Arg Cys Phe Lys Asn Val Glu Thr
            260                 265                 270
Ala Ser Ser Glu Ala Ser Asp Gly Gly Ala Ile Lys Val Thr Thr Arg
        275                 280                 285
Leu Asp Val Thr Gly Asn Arg Gly Arg Ile Phe Phe Ser Asp Asn Ile
    290                 295                 300
Thr Lys Asn Tyr Gly Gly Ala Ile Tyr Ala Pro Val Val Thr Leu Val
305                 310                 315                 320
Asp Asn Gly Pro Thr Tyr Phe Ile Asn Asn Ile Ala Asn Asn Lys Gly
                325                 330                 335
Gly Ala Ile Tyr Ile Asp Gly Thr Ser Asn Ser Lys Ile Ser Ala Asp
            340                 345                 350
Arg His Ala Ile Ile Phe Asn Glu Asn Ile Val Thr Asn Val Thr Asn
        355                 360                 365
Ala Asn Gly Thr Ser Thr Ser Ala Asn Pro Pro Arg Arg Asn Ala Ile
    370                 375                 380
Thr Val Ala Ser Ser Ser Gly Glu Ile Leu Leu Gly Ala Gly Ser Ser
385                 390                 395                 400
Gln Asn Leu Ile Phe Tyr Asp Pro Ile Glu Val Ser Asn Ala Gly Val
                405                 410                 415
Ser Val Ser Phe Asn Lys Glu Ala Asp Gln Thr Gly Ser Val Val Phe
            420                 425                 430
Ser Gly Ala Thr Val Asn Ser Ala Asp Phe His Gln Arg Asn Leu Gln
        435                 440                 445
Thr Lys Thr Pro Ala Pro Leu Thr Leu Ser Asn Gly Phe Leu Cys Ile
    450                 455                 460
Glu Asp His Ala Gln Leu Thr Val Asn Arg Phe Thr Gln Thr Gly Gly
465                 470                 475                 480
Val Val Ser Leu Gly Asn Gly Ala Val Leu Ser Cys Tyr Lys Asn Gly
                485                 490                 495
Thr Gly Asp Ser Ala Ser Asn Ala Ser Ile Thr Leu Lys His Ile Gly
            500                 505                 510
Leu Asn Leu Ser Ser Ile Leu Lys Ser Gly Ala Glu Ile Pro Leu Leu
        515                 520                 525
Trp Val Glu Pro Thr Asn Asn Ser Asn Asn Tyr Thr Ala Asp Thr Ala
    530                 535                 540
Ala Thr Phe Ser Leu Ser Asp Val Lys Leu Ser Leu Ile Asp Asp Tyr
```

```
545                 550                 555                 560
Gly Asn Ser Pro Tyr Glu Ser Thr Asp Leu Thr His Ala Leu Ser Ser
                565                 570                 575
Gln Pro Met Leu Ser Ile Ser Glu Ala Ser Asp Asn Gln Leu Gln Ser
            580                 585                 590
Glu Asn Ile Asp Phe Ser Gly Leu Asn Val Pro His Tyr Gly Trp Gln
        595                 600                 605
Gly Leu Trp Thr Trp Gly Trp Ala Lys Thr Gln Asp Pro Glu Pro Ala
    610                 615                 620
Ser Ser Ala Thr Ile Thr Asp Pro Gln Lys Ala Asn Arg Phe His Arg
625                 630                 635                 640
Thr Leu Leu Leu Thr Trp Leu Pro Ala Gly Tyr Val Pro Ser Pro Lys
                645                 650                 655
His Arg Ser Pro Leu Ile Ala Asn Thr Leu Trp Gly Asn Met Leu Leu
            660                 665                 670
Ala Thr Glu Ser Leu Lys Asn Ser Ala Glu Leu Thr Pro Ser Gly His
        675                 680                 685
Pro Phe Trp Gly Ile Thr Gly Gly Gly Leu Gly Met Met Val Tyr Gln
    690                 695                 700
Asp Pro Arg Glu Asn His Pro Gly Phe His Met Arg Ser Ser Gly Tyr
705                 710                 715                 720
Ser Ala Gly Met Ile Ala Gly Gln Thr His Thr Phe Ser Leu Lys Phe
                725                 730                 735
Ser Gln Thr Tyr Thr Lys Leu Asn Glu Arg Tyr Ala Lys Asn Asn Val
            740                 745                 750
Ser Ser Lys Asn Tyr Ser Cys Gln Gly Glu Met Leu Phe Ser Leu Gln
        755                 760                 765
Glu Gly Phe Leu Leu Thr Lys Leu Val Gly Leu Tyr Ser Tyr Gly Asp
    770                 775                 780
His Asn Cys His His Phe Tyr Thr Gln Gly Glu Asn Leu Thr Ser Gln
785                 790                 795                 800
Gly Thr Phe Arg Ser Gln Thr Met Gly Gly Ala Val Phe Phe Asp Leu
                805                 810                 815
Pro Met Lys Pro Phe Gly Ser Thr His Ile Leu Thr Ala Pro Phe Leu
            820                 825                 830
Gly Ala Leu Gly Ile Tyr Ser Ser Leu Ser His Phe Thr Glu Val Gly
        835                 840                 845
Ala Tyr Pro Arg Ser Phe Ser Thr Lys Thr Pro Leu Ile Asn Val Leu
    850                 855                 860
Val Pro Ile Gly Val Lys Gly Ser Phe Met Asn Ala Thr His Arg Pro
865                 870                 875                 880
Gln Ala Trp Thr Val Glu Leu Ala Tyr Gln Pro Val Leu Tyr Arg Gln
                885                 890                 895
Glu Pro Gly Ile Ala Thr Gln Leu Leu Ala Ser Lys Gly Ile Trp Phe
            900                 905                 910
Gly Ser Gly Ser Pro Ser Ser Arg His Ala Met Ser Tyr Lys Ile Ser
        915                 920                 925
Gln Gln Thr Gln Pro Leu Ser Trp Leu Thr Leu His Phe Gln Tyr His
    930                 935                 940
Gly Phe Tyr Ser Ser Ser Thr Phe Cys Asn Tyr Leu Asn Gly Glu Ile
945                 950                 955                 960
Ala Leu Arg Phe
```

<210> 178
<211> 1530
<212> PRT

<213> Chlamydia

<400> 178

```
Met Ser Ser Glu Lys Asp Ile Lys Ser Thr Cys Ser Lys Phe Ser Leu
 1               5                  10                  15
Ser Val Val Ala Ala Ile Leu Ala Ser Val Ser Gly Leu Ala Ser Cys
            20                  25                  30
Val Asp Leu His Ala Gly Gly Gln Ser Val Asn Glu Leu Val Tyr Val
        35                  40                  45
Gly Pro Gln Ala Val Leu Leu Leu Asp Gln Ile Arg Asp Leu Phe Val
    50                  55                  60
Gly Ser Lys Asp Ser Gln Ala Glu Gly Gln Tyr Arg Leu Ile Val Gly
65                  70                  75                  80
Asp Pro Ser Ser Phe Gln Glu Lys Asp Ala Asp Thr Leu Pro Gly Lys
                85                  90                  95
Val Glu Gln Ser Thr Leu Phe Ser Val Thr Asn Pro Val Val Phe Gln
            100                 105                 110
Gly Val Asp Gln Gln Asp Gln Val Ser Ser Gln Gly Leu Ile Cys Ser
        115                 120                 125
Phe Thr Ser Ser Asn Leu Asp Ser Pro Arg Asp Gly Glu Ser Phe Leu
    130                 135                 140
Gly Ile Ala Phe Val Gly Asp Ser Ser Lys Ala Gly Ile Thr Leu Thr
145                 150                 155                 160
Asp Val Lys Ala Ser Leu Ser Gly Ala Ala Leu Tyr Ser Thr Glu Asp
                165                 170                 175
Leu Ile Phe Glu Lys Ile Lys Gly Gly Leu Glu Phe Ala Ser Cys Ser
            180                 185                 190
Ser Leu Glu Gln Gly Gly Ala Cys Ala Ala Gln Ser Ile Leu Ile His
        195                 200                 205
Asp Cys Gln Gly Leu Gln Val Lys His Cys Thr Thr Ala Val Asn Ala
    210                 215                 220
Glu Gly Ser Ser Ala Asn Asp His Leu Gly Phe Gly Gly Gly Ala Phe
225                 230                 235                 240
Phe Val Thr Gly Ser Leu Ser Gly Glu Lys Ser Leu Tyr Met Pro Ala
                245                 250                 255
Gly Asp Met Val Val Ala Asn Cys Asp Gly Ala Ile Ser Phe Glu Gly
            260                 265                 270
Asn Ser Ala Asn Phe Ala Asn Gly Gly Ala Ile Ala Ala Ser Gly Lys
        275                 280                 285
Val Leu Phe Val Ala Asn Asp Lys Lys Thr Ser Phe Ile Glu Asn Arg
    290                 295                 300
Ala Leu Ser Gly Gly Ala Ile Ala Ala Ser Ser Asp Ile Ala Phe Gln
305                 310                 315                 320
Asn Cys Ala Glu Leu Val Phe Lys Gly Asn Cys Ala Ile Gly Thr Glu
                325                 330                 335
Asp Lys Gly Ser Leu Gly Gly Gly Ala Ile Ser Ser Leu Gly Thr Val
            340                 345                 350
Leu Leu Gln Gly Asn His Gly Ile Thr Cys Asp Lys Asn Glu Ser Ala
        355                 360                 365
Ser Gln Gly Gly Ala Ile Phe Gly Lys Asn Cys Gln Ile Ser Asp Asn
    370                 375                 380
Glu Gly Pro Val Val Phe Arg Asp Ser Thr Ala Cys Leu Gly Gly Gly
385                 390                 395                 400
Ala Ile Ala Ala Gln Glu Ile Val Ser Ile Gln Asn Asn Gln Ala Gly
                405                 410                 415
Ile Ser Phe Glu Gly Gly Lys Ala Ser Phe Gly Gly Gly Ile Ala Cys
            420                 425                 430
```

```
Gly Ser Phe Ser Ser Ala Gly Gly Ala Ser Val Leu Gly Thr Ile Asp
        435                 440                 445
Ile Ser Lys Asn Leu Gly Ala Ile Ser Phe Ser Arg Thr Leu Cys Thr
    450                 455                 460
Thr Ser Asp Leu Gly Gln Met Glu Tyr Gln Gly Gly Gly Ala Leu Phe
465                 470                 475                 480
Gly Glu Asn Ile Ser Leu Ser Glu Asn Ala Gly Val Leu Thr Phe Lys
                485                 490                 495
Asp Asn Ile Val Lys Thr Phe Ala Ser Asn Gly Lys Ile Leu Gly Gly
            500                 505                 510
Gly Ala Ile Leu Ala Thr Gly Lys Val Glu Ile Thr Asn Asn Ser Gly
        515                 520                 525
Gly Ile Ser Phe Thr Gly Asn Ala Arg Ala Pro Gln Ala Leu Pro Thr
    530                 535                 540
Gln Glu Glu Phe Pro Leu Phe Ser Lys Lys Glu Gly Arg Pro Leu Ser
545                 550                 555                 560
Ser Gly Tyr Ser Gly Gly Gly Ala Ile Leu Gly Arg Glu Val Ala Ile
                565                 570                 575
Leu His Asn Ala Ala Val Val Phe Glu Gln Asn Arg Leu Gln Cys Ser
            580                 585                 590
Glu Glu Glu Ala Thr Leu Leu Gly Cys Cys Gly Gly Gly Ala Val His
        595                 600                 605
Gly Met Asp Ser Thr Ser Ile Val Gly Asn Ser Ser Val Arg Phe Gly
    610                 615                 620
Asn Asn Tyr Ala Met Gly Gln Gly Val Ser Gly Gly Ala Leu Leu Ser
625                 630                 635                 640
Lys Thr Val Gln Leu Ala Gly Asn Gly Ser Val Asp Phe Ser Arg Asn
                645                 650                 655
Ile Ala Ser Leu Gly Gly Gly Ala Leu Gln Ala Ser Glu Gly Asn Cys
            660                 665                 670
Glu Leu Val Asp Asn Gly Tyr Val Leu Phe Arg Asp Asn Arg Gly Arg
        675                 680                 685
Val Tyr Gly Gly Ala Ile Ser Cys Leu Arg Gly Asp Val Val Ile Ser
    690                 695                 700
Gly Asn Lys Gly Arg Val Glu Phe Lys Asp Asn Ile Ala Thr Arg Leu
705                 710                 715                 720
Tyr Val Glu Glu Thr Val Glu Lys Val Glu Glu Val Glu Pro Ala Pro
                725                 730                 735
Glu Gln Lys Asp Asn Asn Glu Leu Ser Phe Leu Gly Ser Val Glu Gln
            740                 745                 750
Ser Phe Ile Thr Ala Ala Asn Gln Ala Leu Phe Ala Ser Glu Asp Gly
        755                 760                 765
Asp Leu Ser Pro Glu Ser Ser Ile Ser Ser Glu Glu Leu Ala Lys Arg
    770                 775                 780
Arg Glu Cys Ala Gly Gly Ala Ile Phe Ala Lys Arg Val Arg Ile Val
785                 790                 795                 800
Asp Asn Gln Glu Ala Val Val Phe Ser Asn Asn Phe Ser Asp Ile Tyr
                805                 810                 815
Gly Gly Ala Ile Phe Thr Gly Ser Leu Arg Glu Glu Asp Lys Leu Asp
            820                 825                 830
Gly Gln Ile Pro Glu Val Leu Ile Ser Gly Asn Ala Gly Asp Val Val
        835                 840                 845
Phe Ser Gly Asn Ser Ser Lys Arg Asp Glu His Leu Pro His Thr Gly
    850                 855                 860
Gly Gly Ala Ile Cys Thr Gln Asn Leu Thr Ile Ser Gln Asn Thr Gly
865                 870                 875                 880
Asn Val Leu Phe Tyr Asn Asn Val Ala Cys Ser Gly Gly Ala Val Arg
```

```
                885                 890                 895
Ile Glu Asp His Gly Asn Val Leu Leu Glu Ala Phe Gly Gly Asp Ile
            900                 905                 910
Val Phe Lys Gly Asn Ser Ser Phe Arg Ala Gln Gly Ser Asp Ala Ile
        915                 920                 925
Tyr Phe Ala Gly Lys Glu Ser His Ile Thr Ala Leu Asn Ala Thr Glu
    930                 935                 940
Gly His Ala Ile Val Phe His Asp Ala Leu Val Phe Glu Asn Leu Lys
945                 950                 955                 960
Glu Arg Lys Ser Ala Glu Val Leu Leu Ile Asn Ser Arg Glu Asn Pro
                965                 970                 975
Gly Tyr Thr Gly Ser Ile Arg Phe Leu Glu Ala Glu Ser Lys Val Pro
            980                 985                 990
Gln Cys Ile His Val Gln Gln Gly Ser Leu Glu Leu Leu Asn Gly Ala
        995                 1000                1005
Thr Leu Cys Ser Tyr Gly Phe Lys Gln Asp Ala Gly Ala Lys Leu Val
    1010                1015                1020
Leu Ala Ala Gly Ser Lys Leu Lys Ile Leu Asp Ser Gly Thr Pro Val
1025                1030                1035                1040
Gln Gly His Ala Ile Ser Lys Pro Glu Ala Glu Ile Glu Ser Ser Ser
                1045                1050                1055
Glu Pro Glu Gly Ala His Ser Leu Trp Ile Ala Lys Asn Ala Gln Thr
            1060                1065                1070
Thr Val Pro Met Val Asp Ile His Thr Ile Ser Val Asp Leu Ala Ser
        1075                1080                1085
Phe Ser Ser Ser Gln Gln Glu Gly Thr Val Glu Ala Pro Gln Val Ile
    1090                1095                1100
Val Pro Gly Gly Ser Tyr Val Arg Ser Gly Glu Leu Asn Leu Glu Leu
1105                1110                1115                1120
Val Asn Thr Thr Gly Thr Gly Tyr Glu Asn His Ala Leu Leu Lys Asn
                1125                1130                1135
Glu Ala Lys Val Pro Leu Met Ser Phe Val Ala Ser Ser Asp Glu Ala
            1140                1145                1150
Ser Ala Glu Ile Ser Asn Leu Ser Val Ser Asp Leu Gln Ile His Val
        1155                1160                1165
Ala Thr Pro Glu Ile Glu Glu Asp Thr Tyr Gly His Met Gly Asp Trp
    1170                1175                1180
Ser Glu Ala Lys Ile Gln Asp Gly Thr Leu Val Ile Asn Trp Asn Pro
1185                1190                1195                1200
Thr Gly Tyr Arg Leu Asp Pro Gln Lys Ala Gly Ala Leu Val Phe Asn
                1205                1210                1215
Ala Leu Trp Glu Glu Gly Ala Val Leu Ser Ala Leu Lys Asn Ala Arg
            1220                1225                1230
Phe Ala His Asn Leu Thr Ala Gln Arg Met Glu Phe Asp Tyr Ser Thr
        1235                1240                1245
Asn Val Trp Gly Phe Ala Phe Gly Gly Phe Arg Thr Leu Ser Ala Glu
    1250                1255                1260
Asn Leu Val Ala Ile Asp Gly Tyr Lys Gly Ala Tyr Gly Gly Ala Ser
1265                1270                1275                1280
Ala Gly Val Asp Ile Gln Leu Met Glu Asp Phe Val Leu Gly Val Ser
                1285                1290                1295
Gly Ala Ala Phe Leu Gly Lys Met Asp Ser Gln Lys Phe Asp Ala Glu
            1300                1305                1310
Val Ser Arg Lys Gly Val Val Gly Ser Val Tyr Thr Gly Phe Leu Ala
        1315                1320                1325
Gly Ser Trp Phe Phe Lys Gly Gln Tyr Ser Leu Gly Glu Thr Gln Asn
    1330                1335                1340
```

```
Asp Met Lys Thr Arg Tyr Gly Val Leu Gly Glu Ser Ser Ala Ser Trp
1345                1350                1355                1360
Thr Ser Arg Gly Val Leu Ala Asp Ala Leu Val Glu Tyr Arg Ser Leu
                1365                1370                1375
Val Gly Pro Val Arg Pro Thr Phe Tyr Ala Leu His Phe Asn Pro Tyr
            1380                1385                1390
Val Glu Val Ser Tyr Ala Ser Met Lys Phe Pro Gly Phe Thr Glu Gln
        1395                1400                1405
Gly Arg Glu Ala Arg Ser Phe Glu Asp Ala Ser Leu Thr Asn Ile Thr
    1410                1415                1420
Ile Pro Leu Gly Met Lys Phe Glu Leu Ala Phe Ile Lys Gly Gln Phe
1425                1430                1435                1440
Ser Glu Val Asn Ser Leu Gly Ile Ser Tyr Ala Trp Glu Ala Tyr Arg
                1445                1450                1455
Lys Val Glu Gly Gly Ala Val Gln Leu Leu Glu Ala Gly Phe Asp Trp
            1460                1465                1470
Glu Gly Ala Pro Met Asp Leu Pro Arg Gln Glu Leu Arg Val Ala Leu
        1475                1480                1485
Glu Asn Asn Thr Glu Trp Ser Ser Tyr Phe Ser Thr Val Leu Gly Leu
    1490                1495                1500
Thr Ala Phe Cys Gly Gly Phe Thr Ser Thr Asp Ser Lys Leu Gly Tyr
1505                1510                1515                1520
Glu Ala Asn Thr Gly Leu Arg Leu Ile Phe
                1525                1530
```

<210> 179
<211> 1776
<212> PRT
<213> Chlamydia

<400> 179

```
Ala Ile Met Lys Phe Met Ser Ala Thr Ala Val Phe Ala Ala Val Leu
 1               5                  10                  15
Ser Ser Val Thr Glu Ala Ser Ser Ile Gln Asp Gln Ile Lys Asn Thr
            20                  25                  30
Asp Cys Asn Val Ser Lys Val Gly Tyr Ser Thr Ser Gln Ala Phe Thr
        35                  40                  45
Asp Met Met Leu Ala Asp Asn Thr Glu Tyr Arg Ala Ala Asp Ser Val
    50                  55                  60
Ser Phe Tyr Asp Phe Ser Thr Ser Ser Gly Leu Pro Arg Lys His Leu
65                  70                  75                  80
Ser Ser Ser Ser Glu Ala Ser Pro Thr Thr Glu Gly Val Ser Ser Ser
                85                  90                  95
Ser Ser Gly Glu Asn Thr Glu Asn Ser Gln Asp Ser Ala Pro Ser Ser
            100                 105                 110
Gly Glu Thr Asp Lys Lys Thr Glu Glu Glu Leu Asp Asn Gly Gly Ile
        115                 120                 125
Ile Tyr Ala Arg Glu Lys Leu Thr Ile Ser Glu Ser Gln Asp Ser Leu
    130                 135                 140
Ser Asn Pro Ser Ile Glu Leu His Asp Asn Ser Phe Phe Phe Gly Glu
145                 150                 155                 160
Gly Glu Val Ile Phe Asp His Arg Val Ala Leu Lys Asn Gly Gly Ala
                165                 170                 175
Ile Tyr Gly Glu Lys Glu Val Val Phe Glu Asn Ile Lys Ser Leu Leu
            180                 185                 190
Val Glu Val Asn Ile Ser Val Glu Lys Gly Gly Ser Val Tyr Ala Lys
        195                 200                 205
```

```
Glu Arg Val Ser Leu Glu Asn Val Thr Glu Ala Thr Phe Ser Ser Asn
    210                 215                 220
Gly Gly Glu Gln Gly Gly Gly Gly Ile Tyr Ser Glu Gln Asp Met Leu
225                 230                 235                 240
Ile Ser Asp Cys Asn Asn Val His Phe Gln Gly Asn Ala Ala Gly Ala
                245                 250                 255
Thr Ala Val Lys Gln Cys Leu Asp Glu Glu Met Ile Val Leu Leu Thr
            260                 265                 270
Glu Cys Val Asp Ser Leu Ser Glu Asp Thr Leu Asp Ser Thr Pro Glu
        275                 280                 285
Thr Glu Gln Thr Lys Ser Asn Gly Asn Gln Asp Gly Ser Ser Glu Thr
    290                 295                 300
Lys Asp Thr Gln Val Ser Glu Ser Pro Glu Ser Thr Pro Ser Pro Asp
305                 310                 315                 320
Asp Val Leu Gly Lys Gly Gly Gly Ile Tyr Thr Glu Lys Ser Leu Thr
                325                 330                 335
Ile Thr Gly Ile Thr Gly Thr Ile Asp Phe Val Ser Asn Ile Ala Thr
            340                 345                 350
Asp Ser Gly Ala Gly Val Phe Thr Lys Glu Asn Leu Ser Cys Thr Asn
        355                 360                 365
Thr Asn Ser Leu Gln Phe Leu Lys Asn Ser Ala Gly Gln His Gly Gly
    370                 375                 380
Gly Ala Tyr Val Thr Gln Thr Met Ser Val Thr Asn Thr Thr Ser Glu
385                 390                 395                 400
Ser Ile Thr Thr Pro Pro Leu Val Gly Glu Val Ile Phe Ser Glu Asn
                405                 410                 415
Thr Ala Lys Gly His Gly Gly Gly Ile Cys Thr Asn Lys Leu Ser Leu
            420                 425                 430
Ser Asn Leu Lys Thr Val Thr Leu Thr Lys Asn Ser Ala Lys Glu Ser
        435                 440                 445
Gly Gly Ala Ile Phe Thr Asp Leu Ala Ser Ile Pro Thr Thr Asp Thr
    450                 455                 460
Pro Glu Ser Ser Thr Pro Ser Ser Ser Ser Pro Ala Ser Thr Pro Glu
465                 470                 475                 480
Val Val Ala Ser Ala Lys Ile Asn Arg Phe Phe Ala Ser Thr Ala Glu
                485                 490                 495
Pro Ala Ala Pro Ser Leu Thr Glu Ala Glu Ser Asp Gln Thr Asp Gln
            500                 505                 510
Thr Glu Thr Ser Asp Thr Asn Ser Asp Ile Asp Val Ser Ile Glu Asn
        515                 520                 525
Ile Leu Asn Val Ala Ile Asn Gln Asn Thr Ser Ala Lys Lys Gly Gly
    530                 535                 540
Ala Ile Tyr Gly Lys Lys Ala Lys Leu Ser Arg Ile Asn Asn Leu Glu
545                 550                 555                 560
Leu Ser Gly Asn Ser Ser Gln Asp Val Gly Gly Gly Leu Cys Leu Thr
                565                 570                 575
Glu Ser Val Glu Phe Asp Ala Ile Gly Ser Leu Leu Ser His Tyr Asn
            580                 585                 590
Ser Ala Ala Lys Glu Gly Gly Val Ile His Ser Lys Thr Val Thr Leu
        595                 600                 605
Ser Asn Leu Lys Ser Thr Phe Thr Phe Ala Asp Asn Thr Val Lys Ala
    610                 615                 620
Ile Val Glu Ser Thr Pro Glu Ala Pro Glu Glu Ile Pro Pro Val Glu
625                 630                 635                 640
Gly Glu Glu Ser Thr Ala Thr Glu Asn Pro Asn Ser Asn Thr Glu Gly
                645                 650                 655
Ser Ser Ala Asn Thr Asn Leu Glu Gly Ser Gln Gly Asp Thr Ala Asp
```

```
            660                 665                 670
Thr Gly Thr Gly Val Val Asn Asn Glu Ser Gln Asp Thr Ser Asp Thr
        675                 680                 685
Gly Asn Ala Glu Ser Gly Glu Gln Leu Gln Asp Ser Thr Gln Ser Asn
    690                 695                 700
Glu Glu Asn Thr Leu Pro Asn Ser Ser Ile Asp Gln Ser Asn Glu Asn
705                 710                 715                 720
Thr Asp Glu Ser Ser Asp Ser His Thr Glu Glu Ile Thr Asp Glu Ser
                725                 730                 735
Val Ser Ser Ser Ser Lys Ser Gly Ser Ser Thr Pro Gln Asp Gly Gly
            740                 745                 750
Ala Ala Ser Ser Gly Ala Pro Ser Gly Asp Gln Ser Ile Ser Ala Asn
        755                 760                 765
Ala Cys Leu Ala Lys Ser Tyr Ala Ala Ser Thr Asp Ser Ser Pro Val
    770                 775                 780
Ser Asn Ser Ser Gly Ser Asp Val Thr Ala Ser Ser Asp Asn Pro Asp
785                 790                 795                 800
Ser Ser Ser Ser Gly Asp Ser Ala Gly Asp Ser Glu Gly Pro Thr Glu
                805                 810                 815
Pro Glu Ala Gly Ser Thr Thr Glu Thr Pro Thr Leu Ile Gly Gly Gly
            820                 825                 830
Ala Ile Tyr Gly Glu Thr Val Lys Ile Glu Asn Phe Ser Gly Gln Gly
        835                 840                 845
Ile Phe Ser Gly Asn Lys Ala Ile Asp Asn Thr Thr Glu Gly Ser Ser
    850                 855                 860
Ser Lys Ser Asn Val Leu Gly Gly Ala Val Tyr Ala Lys Thr Leu Phe
865                 870                 875                 880
Asn Leu Asp Ser Gly Ser Ser Arg Arg Thr Val Thr Phe Ser Gly Asn
                885                 890                 895
Thr Val Ser Ser Gln Ser Thr Thr Gly Gln Val Ala Gly Gly Ala Ile
            900                 905                 910
Tyr Ser Pro Thr Val Thr Ile Ala Thr Pro Val Val Phe Ser Lys Asn
        915                 920                 925
Ser Ala Thr Asn Asn Ala Asn Asn Ala Thr Asp Thr Gln Arg Lys Asp
    930                 935                 940
Thr Phe Gly Gly Ala Ile Gly Ala Thr Ser Ala Val Ser Leu Ser Gly
945                 950                 955                 960
Gly Ala His Phe Leu Glu Asn Val Ala Asp Leu Gly Ser Ala Ile Gly
                965                 970                 975
Leu Val Pro Asp Thr Gln Asn Thr Glu Thr Val Lys Leu Glu Ser Gly
            980                 985                 990
Ser Tyr Tyr Phe Glu Lys Asn Lys Ala Leu Lys Arg Ala Thr Ile Tyr
        995                 1000                1005
Ala Pro Val Val Ser Ile Lys Ala Tyr Thr Ala Thr Phe Asn Gln Asn
    1010                1015                1020
Arg Ser Leu Glu Glu Gly Ser Ala Ile Tyr Phe Thr Lys Glu Ala Ser
1025                1030                1035                1040
Ile Glu Ser Leu Gly Ser Val Leu Phe Thr Gly Asn Leu Val Thr Pro
                1045                1050                1055
Thr Leu Ser Thr Thr Thr Glu Gly Thr Pro Ala Thr Thr Ser Gly Asp
            1060                1065                1070
Val Thr Lys Tyr Gly Ala Ala Ile Phe Gly Gln Ile Ala Ser Ser Asn
        1075                1080                1085
Gly Ser Gln Thr Asp Asn Leu Pro Leu Lys Leu Ile Ala Ser Gly Gly
    1090                1095                1100
Asn Ile Cys Phe Arg Asn Asn Glu Tyr Arg Pro Thr Ser Ser Asp Thr
1105                1110                1115                1120
```

```
Gly Thr Ser Thr Phe Cys Ser Ile Ala Gly Asp Val Lys Leu Thr Met
                1125                1130                1135
Gln Ala Ala Lys Gly Lys Thr Ile Ser Phe Phe Asp Ala Ile Arg Thr
            1140                1145                1150
Ser Thr Lys Lys Thr Gly Thr Gln Ala Thr Ala Tyr Asp Thr Leu Asp
        1155                1160                1165
Ile Asn Lys Ser Glu Asp Ser Glu Thr Val Asn Ser Ala Phe Thr Gly
    1170                1175                1180
Thr Ile Leu Phe Ser Ser Glu Leu His Glu Asn Lys Ser Tyr Ile Pro
1185                1190                1195                1200
Gln Asn Val Val Leu His Ser Gly Ser Leu Val Leu Lys Pro Asn Thr
                1205                1210                1215
Glu Leu His Val Ile Ser Phe Glu Gln Lys Glu Gly Ser Ser Leu Val
            1220                1225                1230
Met Thr Pro Gly Ser Val Leu Ser Asn Gln Thr Val Ala Asp Gly Ala
        1235                1240                1245
Leu Val Ile Asn Asn Met Thr Ile Asp Leu Ser Ser Val Glu Lys Asn
    1250                1255                1260
Gly Ile Ala Glu Gly Asn Ile Phe Thr Pro Pro Glu Leu Arg Ile Ile
1265                1270                1275                1280
Asp Thr Thr Thr Ser Gly Ser Gly Gly Thr Pro Ser Thr Asp Ser Glu
                1285                1290                1295
Ser Asn Gln Asn Ser Asp Asp Thr Lys Glu Gln Asn Asn Asn Asp Ala
            1300                1305                1310
Ser Asn Gln Gly Glu Ser Ala Asn Gly Ser Ser Ser Pro Ala Val Ala
        1315                1320                1325
Ala Ala His Thr Ser Arg Thr Arg Asn Phe Ala Ala Ala Ala Thr Ala
    1330                1335                1340
Thr Pro Thr Thr Thr Pro Thr Ala Thr Thr Thr Thr Ser Asn Gln Val
1345                1350                1355                1360
Ile Leu Gly Gly Glu Ile Lys Leu Ile Asp Pro Asn Gly Thr Phe Phe
                1365                1370                1375
Gln Asn Pro Ala Leu Arg Ser Asp Gln Gln Ile Ser Leu Leu Val Leu
            1380                1385                1390
Pro Thr Asp Ser Ser Lys Met Gln Ala Gln Lys Ile Val Leu Thr Gly
        1395                1400                1405
Asp Ile Ala Pro Gln Lys Gly Tyr Thr Gly Thr Leu Thr Leu Asp Pro
    1410                1415                1420
Asp Gln Leu Gln Asn Gly Thr Ile Ser Ala Leu Trp Lys Phe Asp Ser
1425                1430                1435                1440
Tyr Arg Gln Trp Ala Tyr Val Pro Arg Asp Asn His Phe Tyr Ala Asn
                1445                1450                1455
Ser Ile Leu Gly Ser Gln Met Ser Met Val Thr Val Lys Gln Gly Leu
            1460                1465                1470
Leu Asn Asp Lys Met Asn Leu Ala Arg Phe Asp Glu Val Ser Tyr Asn
        1475                1480                1485
Asn Leu Trp Ile Ser Gly Leu Gly Thr Met Leu Ser Gln Val Gly Thr
    1490                1495                1500
Pro Thr Ser Glu Glu Phe Thr Tyr Tyr Ser Arg Gly Ala Ser Val Ala
1505                1510                1515                1520
Leu Asp Ala Lys Pro Ala His Asp Val Ile Val Gly Ala Ala Phe Ser
                1525                1530                1535
Lys Met Ile Gly Lys Thr Lys Ser Leu Lys Arg Glu Asn Asn Tyr Thr
            1540                1545                1550
His Lys Gly Ser Glu Tyr Ser Tyr Gln Ala Ser Val Tyr Gly Gly Lys
        1555                1560                1565
Pro Phe His Phe Val Ile Asn Lys Lys Thr Glu Lys Ser Leu Pro Leu
```

```
    1570                1575                1580
Leu Leu Gln Gly Val Ile Ser Tyr Gly Tyr Ile Lys His Asp Thr Val
1585                1590                1595                1600
Thr His Tyr Pro Thr Ile Arg Glu Arg Asn Gln Gly Glu Trp Glu Asp
                1605                1610                1615
Leu Gly Trp Leu Thr Ala Leu Arg Val Ser Ser Val Leu Arg Thr Pro
            1620                1625                1630
Ala Gln Gly Asp Thr Lys Arg Ile Thr Val Tyr Gly Glu Leu Glu Tyr
        1635                1640                1645
Ser Ser Ile Arg Gln Lys Gln Phe Thr Glu Thr Glu Tyr Asp Pro Arg
    1650                1655                1660
Tyr Phe Asp Asn Cys Thr Tyr Arg Asn Leu Ala Ile Pro Met Gly Leu
1665                1670                1675                1680
Ala Phe Glu Gly Glu Leu Ser Gly Asn Asp Ile Leu Met Tyr Asn Arg
                1685                1690                1695
Phe Ser Val Ala Tyr Met Pro Ser Ile Tyr Arg Asn Ser Pro Thr Cys
            1700                1705                1710
Lys Tyr Gln Val Leu Ser Ser Gly Glu Gly Gly Glu Ile Ile Cys Gly
        1715                1720                1725
Val Pro Thr Arg Asn Ser Ala Arg Gly Glu Tyr Ser Thr Gln Leu Tyr
    1730                1735                1740
Pro Gly Pro Leu Trp Thr Leu Tyr Gly Ser Tyr Thr Ile Glu Ala Asp
1745                1750                1755                1760
Ala His Thr Leu Ala His Met Met Asn Cys Gly Ala Arg Met Thr Phe
                1765                1770                1775
```

<210> 180
<211> 1752
<212> PRT
<213> Chlamydia

<400> 180

```
Met Lys Trp Leu Ser Ala Thr Ala Val Phe Ala Ala Val Leu Pro Ser
 1               5                  10                  15
Val Ser Gly Phe Cys Phe Pro Glu Pro Lys Glu Leu Asn Phe Ser Arg
            20                  25                  30
Val Glu Thr Ser Ser Ser Thr Thr Phe Thr Glu Thr Ile Gly Glu Ala
        35                  40                  45
Gly Ala Glu Tyr Ile Val Ser Gly Asn Ala Ser Phe Thr Lys Phe Thr
    50                  55                  60
Asn Ile Pro Thr Thr Asp Thr Thr Thr Pro Thr Asn Ser Asn Ser Ser
65                  70                  75                  80
Ser Ser Ser Gly Glu Thr Ala Ser Val Ser Glu Asp Ser Asp Ser Thr
                85                  90                  95
Thr Thr Thr Pro Asp Pro Lys Gly Gly Gly Ala Phe Tyr Asn Ala His
            100                 105                 110
Ser Gly Val Leu Ser Phe Met Thr Arg Ser Gly Thr Glu Gly Ser Leu
        115                 120                 125
Thr Leu Ser Glu Ile Lys Met Thr Gly Glu Gly Gly Ala Ile Phe Ser
    130                 135                 140
Gln Gly Glu Leu Leu Phe Thr Asp Leu Thr Ser Leu Thr Ile Gln Asn
145                 150                 155                 160
Asn Leu Ser Gln Leu Ser Gly Gly Ala Ile Phe Gly Gly Ser Thr Ile
                165                 170                 175
Ser Leu Ser Gly Ile Thr Lys Ala Thr Phe Ser Cys Asn Ser Ala Glu
            180                 185                 190
Val Pro Ala Pro Val Lys Lys Pro Thr Glu Pro Lys Ala Gln Thr Ala
```

```
        195                 200                 205
Ser Glu Thr Ser Gly Ser Ser Ser Ser Ser Gly Asn Asp Ser Val Ser
    210                 215                 220
Ser Pro Ser Ser Ser Arg Ala Glu Pro Ala Ala Ala Asn Leu Gln Ser
225                 230                 235                 240
His Phe Ile Cys Ala Thr Ala Thr Pro Ala Ala Gln Thr Asp Thr Glu
                245                 250                 255
Thr Ser Thr Pro Ser His Lys Pro Gly Ser Gly Gly Ala Ile Tyr Ala
            260                 265                 270
Lys Gly Asp Leu Thr Ile Ala Asp Ser Gln Glu Val Leu Phe Ser Ile
        275                 280                 285
Asn Lys Ala Thr Lys Asp Gly Gly Ala Ile Phe Ala Glu Lys Asp Val
    290                 295                 300
Ser Phe Glu Asn Ile Thr Ser Leu Lys Val Gln Thr Asn Gly Ala Glu
305                 310                 315                 320
Glu Lys Gly Gly Ala Ile Tyr Ala Lys Gly Asp Leu Ser Ile Gln Ser
                325                 330                 335
Ser Lys Gln Ser Leu Phe Asn Ser Asn Tyr Ser Lys Gln Gly Gly Gly
            340                 345                 350
Ala Leu Tyr Val Glu Gly Gly Ile Asn Phe Gln Asp Leu Glu Glu Ile
        355                 360                 365
Arg Ile Lys Tyr Asn Lys Ala Gly Thr Phe Glu Thr Lys Lys Ile Thr
    370                 375                 380
Leu Pro Ser Leu Lys Ala Gln Ala Ser Ala Gly Asn Ala Asp Ala Trp
385                 390                 395                 400
Ala Ser Ser Ser Pro Gln Ser Gly Ser Gly Ala Thr Thr Val Ser Asp
                405                 410                 415
Ser Gly Asp Ser Ser Ser Gly Ser Asp Ser Asp Thr Ser Glu Thr Val
            420                 425                 430
Pro Val Thr Ala Lys Gly Gly Gly Leu Tyr Thr Asp Lys Asn Leu Ser
        435                 440                 445
Ile Thr Asn Ile Thr Gly Ile Ile Glu Ile Ala Asn Asn Lys Ala Thr
    450                 455                 460
Asp Val Gly Gly Gly Ala Tyr Val Lys Gly Thr Leu Thr Cys Glu Asn
465                 470                 475                 480
Ser His Arg Leu Gln Phe Leu Lys Asn Ser Ser Asp Lys Gln Gly Gly
                485                 490                 495
Gly Ile Tyr Gly Glu Asp Asn Ile Thr Leu Ser Asn Leu Thr Gly Lys
            500                 505                 510
Thr Leu Phe Gln Glu Asn Thr Ala Lys Glu Glu Gly Gly Gly Leu Phe
        515                 520                 525
Ile Lys Gly Thr Asp Lys Ala Leu Thr Met Thr Gly Leu Asp Ser Phe
    530                 535                 540
Cys Leu Ile Asn Asn Thr Ser Glu Lys His Gly Gly Gly Ala Phe Val
545                 550                 555                 560
Thr Lys Glu Ile Ser Gln Thr Tyr Thr Ser Asp Val Glu Thr Ile Pro
                565                 570                 575
Gly Ile Thr Pro Val His Gly Glu Thr Val Ile Thr Gly Asn Lys Ser
            580                 585                 590
Thr Gly Gly Asn Gly Gly Gly Val Cys Thr Lys Arg Leu Ala Leu Ser
        595                 600                 605
Asn Leu Gln Ser Ile Ser Ile Ser Gly Asn Ser Ala Ala Glu Asn Gly
    610                 615                 620
Gly Gly Ala His Thr Cys Pro Asp Ser Phe Pro Thr Ala Asp Thr Ala
625                 630                 635                 640
Glu Gln Pro Ala Ala Ala Ser Ala Ala Thr Ser Thr Pro Lys Ser Ala
                645                 650                 655
```

```
Pro Val Ser Thr Ala Leu Ser Thr Pro Ser Ser Ser Thr Val Ser Ser
            660                 665                 670
Leu Thr Leu Leu Ala Ala Ser Ser Gln Ala Ser Pro Ala Thr Ser Asn
        675                 680                 685
Lys Glu Thr Gln Asp Pro Asn Ala Asp Thr Asp Leu Leu Ile Asp Tyr
    690                 695                 700
Val Val Asp Thr Thr Ile Ser Lys Asn Thr Ala Lys Lys Gly Gly Gly
705                 710                 715                 720
Ile Tyr Ala Lys Lys Ala Lys Met Ser Arg Ile Asp Gln Leu Asn Ile
                725                 730                 735
Ser Glu Asn Ser Ala Thr Glu Ile Gly Gly Gly Ile Cys Cys Lys Glu
            740                 745                 750
Ser Leu Glu Leu Asp Ala Leu Val Ser Leu Ser Val Thr Glu Asn Leu
        755                 760                 765
Val Gly Lys Glu Gly Gly Gly Leu His Ala Lys Thr Val Asn Ile Ser
    770                 775                 780
Asn Leu Lys Ser Gly Phe Ser Phe Ser Asn Asn Lys Ala Asn Ser Ser
785                 790                 795                 800
Ser Thr Gly Val Ala Thr Thr Ala Ser Ala Pro Ala Ala Ala Ala Ala
                805                 810                 815
Ser Leu Gln Ala Ala Ala Ala Ala Ala Pro Ser Ser Pro Ala Thr Pro
            820                 825                 830
Thr Tyr Ser Gly Val Val Gly Gly Ala Ile Tyr Gly Glu Lys Val Thr
        835                 840                 845
Phe Ser Gln Cys Ser Gly Thr Cys Gln Phe Ser Gly Asn Gln Ala Ile
    850                 855                 860
Asp Asn Asn Pro Ser Gln Ser Ser Leu Asn Val Gln Gly Gly Ala Ile
865                 870                 875                 880
Tyr Ala Lys Thr Ser Leu Ser Ile Gly Ser Ser Asp Ala Gly Thr Ser
                885                 890                 895
Tyr Ile Phe Ser Gly Asn Ser Val Ser Thr Gly Lys Ser Gln Thr Thr
            900                 905                 910
Gly Gln Ile Ala Gly Gly Ala Ile Tyr Ser Pro Thr Val Thr Leu Asn
        915                 920                 925
Cys Pro Ala Thr Phe Ser Asn Asn Thr Ala Ser Ile Ala Thr Pro Lys
    930                 935                 940
Thr Ser Ser Glu Asp Gly Ser Ser Gly Asn Ser Ile Lys Asp Thr Ile
945                 950                 955                 960
Gly Gly Ala Ile Ala Gly Thr Ala Ile Thr Leu Ser Gly Val Ser Arg
                965                 970                 975
Phe Ser Gly Asn Thr Ala Asp Leu Gly Ala Ala Ile Gly Thr Leu Ala
            980                 985                 990
Asn Ala Asn Thr Pro Ser Ala Thr Ser Gly Ser Gln Asn Ser Ile Thr
        995                 1000                1005
Glu Lys Ile Thr Leu Glu Asn Gly Ser Phe Ile Phe Glu Arg Asn Gln
    1010                1015                1020
Ala Asn Lys Arg Gly Ala Ile Tyr Ser Pro Ser Val Ser Ile Lys Gly
1025                1030                1035                1040
Asn Asn Ile Thr Phe Asn Gln Asn Thr Ser Thr His Asp Gly Ser Ala
                1045                1050                1055
Ile Tyr Phe Thr Lys Asp Ala Thr Ile Glu Ser Leu Gly Ser Val Leu
            1060                1065                1070
Phe Thr Gly Asn Asn Val Thr Ala Thr Gln Ala Ser Ser Ala Thr Ser
        1075                1080                1085
Gly Gln Asn Thr Asn Thr Ala Asn Tyr Gly Ala Ala Ile Phe Gly Asp
    1090                1095                1100
Pro Gly Thr Thr Gln Ser Ser Gln Thr Asp Ala Ile Leu Thr Leu Leu
```

```
1105                1110                1115                1120
Ala Ser Ser Gly Asn Ile Thr Phe Ser Asn Asn Ser Leu Gln Asn Asn
                1125                1130                1135
Gln Gly Asp Thr Pro Ala Ser Lys Phe Cys Ser Ile Ala Gly Tyr Val
            1140                1145                1150
Lys Leu Ser Leu Gln Ala Ala Lys Gly Lys Thr Ile Ser Phe Phe Asp
        1155                1160                1165
Cys Val His Thr Ser Thr Lys Lys Thr Gly Ser Thr Gln Asn Val Tyr
    1170                1175                1180
Glu Thr Leu Asp Ile Asn Lys Glu Glu Asn Ser Asn Pro Tyr Thr Gly
1185                1190                1195                1200
Thr Ile Val Phe Ser Ser Glu Leu His Glu Asn Lys Ser Tyr Ile Pro
                1205                1210                1215
Gln Asn Ala Ile Leu His Asn Gly Thr Leu Val Leu Lys Glu Lys Thr
            1220                1225                1230
Glu Leu His Val Val Ser Phe Glu Gln Lys Glu Gly Ser Lys Leu Ile
        1235                1240                1245
Met Glu Pro Gly Ala Val Leu Ser Asn Gln Asn Ile Ala Asn Gly Ala
    1250                1255                1260
Leu Ala Ile Asn Gly Leu Thr Ile Asp Leu Ser Ser Met Gly Thr Pro
1265                1270                1275                1280
Gln Ala Gly Glu Ile Phe Ser Pro Pro Glu Leu Arg Ile Val Ala Thr
                1285                1290                1295
Thr Ser Ser Ala Ser Gly Gly Ser Gly Val Ser Ser Ser Ile Pro Thr
            1300                1305                1310
Asn Pro Lys Arg Ile Ser Ala Ala Val Pro Ser Gly Ser Ala Ala Thr
        1315                1320                1325
Thr Pro Thr Met Ser Glu Asn Lys Val Phe Leu Thr Gly Asp Leu Thr
    1330                1335                1340
Leu Ile Asp Pro Asn Gly Asn Phe Tyr Gln Asn Pro Met Leu Gly Ser
1345                1350                1355                1360
Asp Leu Asp Val Pro Leu Ile Lys Leu Pro Thr Asn Thr Ser Asp Val
                1365                1370                1375
Gln Val Tyr Asp Leu Thr Leu Ser Gly Asp Leu Phe Pro Gln Lys Gly
            1380                1385                1390
Tyr Met Gly Thr Trp Thr Leu Asp Ser Asn Pro Gln Thr Gly Lys Leu
        1395                1400                1405
Gln Ala Arg Trp Thr Phe Asp Thr Tyr Arg Arg Trp Val Tyr Ile Pro
    1410                1415                1420
Arg Asp Asn His Phe Tyr Ala Asn Ser Ile Leu Gly Ser Gln Asn Ser
1425                1430                1435                1440
Met Ile Val Val Lys Gln Gly Leu Ile Asn Asn Met Leu Asn Asn Ala
                1445                1450                1455
Arg Phe Asp Asp Ile Ala Tyr Asn Asn Phe Trp Val Ser Gly Val Gly
            1460                1465                1470
Thr Phe Leu Ala Gln Gln Gly Thr Pro Leu Ser Glu Glu Phe Ser Tyr
        1475                1480                1485
Tyr Ser Arg Gly Thr Ser Val Ala Ile Asp Ala Lys Pro Arg Gln Asp
    1490                1495                1500
Phe Ile Leu Gly Ala Ala Phe Ser Lys Ile Val Gly Lys Thr Lys Ala
1505                1510                1515                1520
Ile Lys Lys Met His Asn Tyr Phe His Lys Gly Ser Glu Tyr Ser Tyr
                1525                1530                1535
Gln Ala Ser Val Tyr Gly Gly Lys Phe Leu Tyr Phe Leu Leu Asn Lys
            1540                1545                1550
Gln His Gly Trp Ala Leu Pro Phe Leu Ile Gln Gly Val Val Ser Tyr
        1555                1560                1565
```

```
Gly His Ile Lys His Asp Thr Thr Thr Leu Tyr Pro Ser Ile His Glu
    1570                1575                1580
Arg Asn Lys Gly Asp Trp Glu Asp Leu Gly Trp Leu Ala Asp Leu Arg
1585                1590                1595                1600
Ile Ser Met Asp Leu Lys Glu Pro Ser Lys Asp Ser Ser Lys Arg Ile
                1605                1610                1615
Thr Val Tyr Gly Glu Leu Glu Tyr Ser Ser Ile Arg Gln Lys Gln Phe
            1620                1625                1630
Thr Glu Ile Asp Tyr Asp Pro Arg His Phe Asp Asp Cys Ala Tyr Arg
        1635                1640                1645
Asn Leu Ser Leu Pro Val Gly Cys Ala Val Glu Gly Ala Ile Met Asn
    1650                1655                1660
Cys Asn Ile Leu Met Tyr Asn Lys Leu Ala Leu Ala Tyr Met Pro Ser
1665                1670                1675                1680
Ile Tyr Arg Asn Asn Pro Val Cys Lys Tyr Arg Val Leu Ser Ser Asn
                1685                1690                1695
Glu Ala Gly Gln Val Ile Cys Gly Val Pro Thr Arg Thr Ser Ala Arg
            1700                1705                1710
Ala Glu Tyr Ser Thr Gln Leu Tyr Leu Gly Pro Phe Trp Thr Leu Tyr
        1715                1720                1725
Gly Asn Tyr Thr Ile Asp Val Gly Met Tyr Thr Leu Ser Gln Met Thr
    1730                1735                1740
Ser Cys Gly Ala Arg Met Ile Phe
1745                1750
```

<210> 181
<211> 2601
<212> DNA
<213> Chlamydia

<400> 181

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gaaggaagcg cgatttactt tacaaaagaa gcatctattg agtctttagg ctctgttctc 660
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aactgcggtg ctcgtatgac attctaa 2847

<210> 187

<211> 2466
<212> DNA
<213> Chlamydia

<400> 187
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gacaacacag agtatcgagc tgctgatagt gtttcattct atgacttttc gacatcttcc 180
ggattaccta gaaaacatct tagtagtagt agtgaagctt ctccaacgac agaaggagtg 240
tcttcatctt catctggaga aaatactgag aattcacaag attcagctcc ctcttctgga 300
gaaactgata agaaaacaga agaagaacta gacaatggcg gaatcattta tgctagagag 360
aaactaacta tctcagaatc tcaggactct ctctctaatc caagcataga actccatgac 420
aatagttttt tcttcggaga aggtgaagtt atctttgatc acagagttgc cctcaaaaac 480
ggaggagcta tttatggaga gaaagaggta gtctttgaaa acataaaatc tctactagta 540
gaagtaaata tctcggtcga gaaagggggt agcgtctatg caaaagaacg agtatcttta 600
gaaaatgtta ccgaagcaac cttctcctcc aatggtgggg aacaaggtgg tggtggaatc 660
tattcagaac aagatatgtt aatcagtgat tgcaacaatg tacatttcca agggaatgct 720
gcaggagcaa cagcagtaaa acaatgtctg gatgaagaaa tgatcgtatt gctcacagaa 780
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gacgagagtg tctcatcgtc ctctaaaagt ggatcatcta ctcctcaaga tggaggagca 2220
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gcatcttctg ataatccaga ctcttcctca tctggagata gcgctggaga ctctgaagga 2400
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atctga 2466

<210> 188
<211> 1578
<212> DNA
<213> Chlamydia

<400> 188
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cagggattcg ccattccgat cgggcaggcg atggcgatcg cgggccagat caagcttccc 120
accgttcata tcgggcctac cgccttcctc ggcttgggtg ttgtcgacaa caacggcaac 180

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ggcgcacgag tccaacgcgt ggtcgggagc gctccggcgg caagtctcgg catctccacc     240
ggcgacgtga tcaccgcggt cgacggcgct ccgatcaact cggccaccgc gatggcggac     300
gcgcttaacg ggcatcatcc cggtgacgtc atctcggtga cctggcaaac caagtcgggc     360
ggcacgcgta cagggaacgt gacattggcc gagggacccc cggccgaatt cccgctagta     420
cctagaggtt caccgctgcc tgtggggaat ccagctgaac caagtttatt aatcgatggc     480
actatgtggg aaggtgcttc aggagatcct tgcgatcctt gcgctacttg gtgtgacgcc     540
attagcatcc gcgcaggata ctacggagat tatgttttcg atcgtgtatt aaaagttgat     600
gtgaataaaa cttttagcgg catggctgca actcctacgc aggctatagg taacgcaagt     660
aatactaatc agccagaagc aaatggcaga ccgaacatcg cttacggaag gcatatgcaa     720
gatgcagagt ggttttcaaa tgcagccttc ctagccttaa acatttggga tcgcttcgac     780
attttctgca ccttaggggc atccaatgga tacttcaaag caagttcggc tgcattcaac     840
ttggttgggt taatagggtt ttcagctgca agctcaatct ctaccgatct tccaatgcaa     900
cttcctaacg taggcattac ccaaggtgtt gtggaatttt atacagacac atcatttttct    960
tggagcgtag gtgcacgtgg agctttatgg gaatgtggtt gtgcaacttt aggagctgag    1020
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caatttgtga ttcacaaacc aagaggctat aaaggagcta gctcgaattt tcctttacct    1140
ataacggctg gaacaacaga agctacagac accaaatcag ctacaattaa ataccatgaa    1200
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tcggagattc ttaacattac tacatggaac ccaagcctta taggatcaac cactgctttg    1380
cccaataata gtggtaagga tgttctatct gatgtcttgc aaattgcttc gattcagatc    1440
aacaaaatga agtctagaaa agcttgtggt gtagctgttg gtgcaacgtt aatcgacgct    1500
gacaaatggt caatcactgg tgaagcacgc ttaatcaatg aaagagctgc tcacatgaat    1560
gcacaattcc gcttctaa                                                  1578
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<210> 189
<211> 866
<212> PRT
<213> Chlamydia

<220>
<221> VARIANT
<222> (1)...(866)
<223> Xaa = Any Amino Acid

<400> 189

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            20                  25                  30
Phe Phe Glu Asp Cys Thr Met Glu Ser Leu Phe Pro Ala Leu Cys Ala
        35                  40                  45
His Ala Ser Gln Asp Asp Pro Leu Tyr Val Leu Gly Asn Ser Tyr Cys
    50                  55                  60
Trp Phe Val Ser Lys Leu His Ile Thr Asp Pro Lys Glu Ala Leu Phe
65                  70                  75                  80
Lys Glu Lys Gly Asp Leu Ser Ile Gln Asn Phe Arg Phe Leu Ser Phe
                85                  90                  95
Thr Asp Cys Ser Ser Lys Glu Ser Ser Pro Ser Ile Ile His Gln Lys
            100                 105                 110
Asn Gly Gln Leu Ser Leu Arg Asn Asn Gly Ser Met Ser Phe Cys Arg
        115                 120                 125
Asn His Ala Glu Gly Ser Gly Gly Ala Ile Ser Ala Asp Ala Phe Ser
    130                 135                 140
Leu Gln His Asn Tyr Leu Phe Thr Ala Phe Glu Glu Asn Ser Ser Lys
145                 150                 155                 160
Gly Asn Gly Gly Ala Ile Gln Ala Gln Thr Phe Ser Leu Ser Arg Asn
```

```
                 165                 170                 175
Val Ser Pro Ile Ser Phe Ala Arg Asn Arg Ala Asp Leu Asn Gly Gly
            180                 185                 190
Ala Ile Cys Cys Ser Asn Leu Ile Cys Ser Gly Asn Val Asn Pro Leu
        195                 200                 205
Phe Phe Thr Gly Asn Ser Ala Thr Asn Gly Gly Xaa Ile Cys Cys Ile
    210                 215                 220
Ser Asp Leu Asn Thr Ser Glu Lys Gly Ser Leu Ser Leu Ala Cys Asn
225                 230                 235                 240
Gln Xaa Thr Leu Phe Ala Ser Asn Ser Ala Lys Glu Lys Gly Gly Ala
                245                 250                 255
Ile Tyr Ala Lys His Met Val Leu Arg Tyr Asn Gly Pro Val Ser Phe
            260                 265                 270
Ile Asn Asn Ser Ala Lys Ile Gly Gly Ala Ile Ala Ile Gln Ser Gly
        275                 280                 285
Gly Ser Leu Ser Ile Leu Ala Gly Glu Gly Ser Val Leu Phe Gln Asn
    290                 295                 300
Asn Ser Gln Arg Thr Ser Asp Gln Gly Leu Val Arg Asn Ala Ile Tyr
305                 310                 315                 320
Leu Glu Lys Asp Ala Ile Leu Ser Ser Leu Glu Ala Arg Asn Gly Asp
                325                 330                 335
Ile Leu Phe Phe Asp Pro Ile Val Gln Glu Ser Ser Ser Lys Glu Ser
            340                 345                 350
Pro Leu Pro Ser Ser Leu Gln Ala Ser Val Thr Ser Pro Thr Pro Ala
        355                 360                 365
Thr Ala Ser Pro Leu Val Ile Gln Thr Ser Ala Asn Arg Ser Val Ile
    370                 375                 380
Phe Ser Ser Glu Arg Leu Ser Glu Glu Glu Lys Thr Pro Asp Asn Leu
385                 390                 395                 400
Thr Ser Gln Leu Gln Gln Pro Ile Glu Leu Lys Ser Gly Arg Leu Val
                405                 410                 415
Leu Lys Asp Arg Ala Val Leu Ser Xaa Pro Ser Leu Ser Gln Asp Pro
            420                 425                 430
Gln Ala Leu Leu Ile Met Glu Ala Gly Thr Ser Leu Lys Thr Ser Xaa
        435                 440                 445
Asp Leu Lys Leu Xaa Thr Xaa Ser Ile Pro Leu His Ser Leu Asp Thr
    450                 455                 460
Glu Lys Ser Val Thr Ile His Ala Pro Asn Leu Ser Ile Gln Lys Ile
465                 470                 475                 480
Phe Leu Ser Asn Ser Gly Asp Glu Asn Phe Tyr Glu Asn Val Glu Leu
                485                 490                 495
Leu Ser Lys Glu Gln Asn Asn Ile Pro Leu Leu Thr Leu Pro Lys Glu
            500                 505                 510
Gln Ser His Leu His Leu Pro Asp Gly Asn Leu Ser Ser His Phe Gly
        515                 520                 525
Tyr Gln Gly Asp Trp Thr Phe Ser Trp Lys Asp Ser Asp Glu Gly His
    530                 535                 540
Ser Leu Ile Ala Asn Trp Thr Pro Lys Asn Tyr Val Pro His Pro Glu
545                 550                 555                 560
Arg Gln Ser Thr Leu Val Ala Asn Thr Leu Trp Asn Thr Tyr Ser Asp
                565                 570                 575
Met Gln Ala Val Gln Ser Met Ile Asn Thr Thr Ala His Gly Gly Ala
            580                 585                 590
Tyr Leu Phe Gly Thr Trp Gly Ser Ala Val Ser Asn Leu Phe Tyr Val
        595                 600                 605
His Asp Ser Ser Gly Lys Pro Ile Asp Asn Trp His His Arg Ser Leu
    610                 615                 620
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```
Gly Tyr Leu Phe Gly Ile Ser Thr His Ser Leu Asp Asp His Ser Phe
625                 630                 635                 640
Cys Leu Ala Ala Gly Gln Leu Leu Gly Lys Ser Ser Asp Ser Phe Ile
                645                 650                 655
Thr Ser Thr Glu Thr Thr Ser Tyr Ile Ala Thr Val Gln Ala Gln Leu
            660                 665                 670
Ala Thr Ser Leu Met Lys Ile Ser Ala Gln Ala Cys Tyr Asn Glu Ser
        675                 680                 685
Ile His Glu Leu Lys Thr Lys Tyr Arg Ser Phe Ser Lys Glu Gly Phe
    690                 695                 700
Gly Ser Trp His Ser Val Ala Val Ser Gly Glu Val Cys Ala Ser Ile
705                 710                 715                 720
Pro Ile Val Ser Asn Gly Ser Gly Leu Phe Ser Ser Phe Ser Ile Phe
                725                 730                 735
Ser Lys Leu Gln Gly Phe Ser Gly Thr Gln Asp Gly Phe Glu Glu Ser
            740                 745                 750
Ser Gly Glu Ile Arg Ser Phe Ser Ala Ser Ser Phe Arg Asn Ile Ser
        755                 760                 765
Leu Pro Ile Gly Ile Thr Phe Glu Lys Lys Ser Gln Lys Thr Arg Thr
    770                 775                 780
Tyr Tyr Tyr Phe Leu Gly Ala Tyr Ile Gln Asp Leu Lys Arg Asp Val
785                 790                 795                 800
Glu Ser Gly Pro Val Val Leu Leu Lys Asn Ala Val Ser Trp Asp Ala
                805                 810                 815
Pro Met Ala Asn Leu Asp Ser Arg Ala Tyr Met Phe Arg Leu Thr Asn
            820                 825                 830
Gln Arg Ala Leu His Arg Leu Gln Thr Leu Leu Asn Val Ser Cys Val
        835                 840                 845
Leu Arg Gly Gln Ser His Ser Tyr Ser Leu Asp Leu Gly Thr Thr Tyr
    850                 855                 860
Arg Phe
865
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<210> 190
<211> 1006
<212> PRT
<213> Chlamydia

<400> 190

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Val Pro His His His His His His Met Ile Pro Gln Gly Ile Tyr Asp
            20                  25                  30
Gly Glu Thr Leu Thr Val Ser Phe Pro Tyr Thr Val Ile Gly Asp Pro
        35                  40                  45
Ser Gly Thr Thr Val Phe Ser Ala Gly Glu Leu Thr Leu Lys Asn Leu
    50                  55                  60
Asp Asn Ser Ile Ala Ala Leu Pro Leu Ser Cys Phe Gly Asn Leu Leu
65                  70                  75                  80
Gly Ser Phe Thr Val Leu Gly Arg Gly His Ser Leu Thr Phe Glu Asn
                85                  90                  95
Ile Arg Thr Ser Thr Asn Gly Ala Ala Leu Ser Asn Ser Ala Ala Asp
            100                 105                 110
Gly Leu Phe Thr Ile Glu Gly Phe Lys Glu Leu Ser Phe Ser Asn Cys
        115                 120                 125
Asn Ser Leu Leu Ala Val Leu Pro Ala Ala Thr Thr Asn Lys Gly Ser
    130                 135                 140
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Gln Thr Pro Thr Thr Thr Ser Thr Pro Ser Asn Gly Thr Ile Tyr Ser
145                 150                 155                 160
Lys Thr Asp Leu Leu Leu Leu Asn Asn Glu Lys Phe Ser Phe Tyr Ser
                165                 170                 175
Asn Leu Val Ser Gly Asp Gly Gly Ala Ile Asp Ala Lys Ser Leu Thr
            180                 185                 190
Val Gln Gly Ile Ser Lys Leu Cys Val Phe Gln Glu Asn Thr Ala Gln
        195                 200                 205
Ala Asp Gly Gly Ala Cys Gln Val Val Thr Ser Phe Ser Ala Met Ala
    210                 215                 220
Asn Glu Ala Pro Ile Ala Phe Val Ala Asn Val Ala Gly Val Arg Gly
225                 230                 235                 240
Gly Gly Ile Ala Ala Val Gln Asp Gly Gln Gln Gly Val Ser Ser Ser
                245                 250                 255
Thr Ser Thr Glu Asp Pro Val Val Ser Phe Ser Arg Asn Thr Ala Val
            260                 265                 270
Glu Phe Asp Gly Asn Val Ala Arg Val Gly Gly Gly Ile Tyr Ser Tyr
        275                 280                 285
Gly Asn Val Ala Phe Leu Asn Asn Gly Lys Thr Leu Phe Leu Asn Asn
    290                 295                 300
Val Ala Ser Pro Val Tyr Ile Ala Ala Lys Gln Pro Thr Ser Gly Gln
305                 310                 315                 320
Ala Ser Asn Thr Ser Asn Asn Tyr Gly Asp Gly Gly Ala Ile Phe Cys
                325                 330                 335
Lys Asn Gly Ala Gln Ala Gly Ser Asn Asn Ser Gly Ser Val Ser Phe
            340                 345                 350
Asp Gly Glu Gly Val Val Phe Phe Ser Ser Asn Val Ala Ala Gly Lys
        355                 360                 365
Gly Gly Ala Ile Tyr Ala Lys Lys Leu Ser Val Ala Asn Cys Gly Pro
    370                 375                 380
Val Gln Phe Leu Arg Asn Ile Ala Asn Asp Gly Gly Ala Ile Tyr Leu
385                 390                 395                 400
Gly Glu Ser Gly Glu Leu Ser Leu Ser Ala Asp Tyr Gly Asp Ile Ile
                405                 410                 415
Phe Asp Gly Asn Leu Lys Arg Thr Ala Lys Glu Asn Ala Ala Asp Val
            420                 425                 430
Asn Gly Val Thr Val Ser Ser Gln Ala Ile Ser Met Gly Ser Gly Gly
        435                 440                 445
Lys Ile Thr Thr Leu Arg Ala Lys Ala Gly His Gln Ile Leu Phe Asn
    450                 455                 460
Asp Pro Ile Glu Met Ala Asn Gly Asn Asn Gln Pro Ala Gln Ser Ser
465                 470                 475                 480
Lys Leu Leu Lys Ile Asn Asp Gly Glu Gly Tyr Thr Gly Asp Ile Val
                485                 490                 495
Phe Ala Asn Gly Ser Ser Thr Leu Tyr Gln Asn Val Thr Ile Glu Gln
            500                 505                 510
Gly Arg Ile Val Leu Arg Glu Lys Ala Lys Leu Ser Val Asn Ser Leu
        515                 520                 525
Ser Gln Thr Gly Gly Ser Leu Tyr Met Glu Ala Gly Ser Thr Leu Asp
    530                 535                 540
Phe Val Thr Pro Gln Pro Pro Gln Gln Pro Pro Ala Ala Asn Gln Leu
545                 550                 555                 560
Ile Thr Leu Ser Asn Leu His Leu Ser Leu Ser Ser Leu Leu Ala Asn
                565                 570                 575
Asn Ala Val Thr Asn Pro Pro Thr Asn Pro Pro Ala Gln Asp Ser His
            580                 585                 590
Pro Ala Val Ile Gly Ser Thr Thr Ala Gly Ser Val Thr Ile Ser Gly
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595 600 605
Pro Ile Phe Phe Glu Asp Leu Asp Asp Thr Ala Tyr Asp Arg Tyr Asp
610 615 620
Trp Leu Gly Ser Asn Gln Lys Ile Asn Val Leu Lys Leu Gln Leu Gly
625 630 635 640
Thr Lys Pro Pro Ala Asn Ala Pro Ser Asp Leu Thr Leu Gly Asn Glu
645 650 655
Met Pro Lys Tyr Gly Tyr Gln Gly Ser Trp Lys Leu Ala Trp Asp Pro
660 665 670
Asn Thr Ala Asn Asn Gly Pro Tyr Thr Leu Lys Ala Thr Trp Thr Lys
675 680 685
Thr Gly Tyr Asn Pro Gly Pro Glu Arg Val Ala Ser Leu Val Pro Asn
690 695 700
Ser Leu Trp Gly Ser Ile Leu Asp Ile Arg Ser Ala His Ser Ala Ile
705 710 715 720
Gln Ala Ser Val Asp Gly Arg Ser Tyr Cys Arg Gly Leu Trp Val Ser
725 730 735
Gly Val Ser Asn Phe Phe Tyr His Asp Arg Asp Ala Leu Gly Gln Gly
740 745 750
Tyr Arg Tyr Ile Ser Gly Gly Tyr Ser Leu Gly Ala Asn Ser Tyr Phe
755 760 765
Gly Ser Ser Met Phe Gly Leu Ala Phe Thr Glu Val Phe Gly Arg Ser
770 775 780
Lys Asp Tyr Val Val Cys Arg Ser Asn His His Ala Cys Ile Gly Ser
785 790 795 800
Val Tyr Leu Ser Thr Gln Gln Ala Leu Cys Gly Ser Tyr Leu Phe Gly
805 810 815
Asp Ala Phe Ile Arg Ala Ser Tyr Gly Phe Gly Asn Gln His Met Lys
820 825 830
Thr Ser Tyr Thr Phe Ala Glu Glu Ser Asp Val Arg Trp Asp Asn Asn
835 840 845
Cys Leu Ala Gly Glu Ile Gly Ala Gly Leu Pro Ile Val Ile Thr Pro
850 855 860
Ser Lys Leu Tyr Leu Asn Glu Leu Arg Pro Phe Val Gln Ala Glu Phe
865 870 875 880
Ser Tyr Ala Asp His Glu Ser Phe Thr Glu Glu Gly Asp Gln Ala Arg
885 890 895
Ala Phe Lys Ser Gly His Leu Leu Asn Leu Ser Val Pro Val Gly Val
900 905 910
Lys Phe Asp Arg Cys Ser Ser Thr His Pro Asn Lys Tyr Ser Phe Met
915 920 925
Ala Ala Tyr Ile Cys Asp Ala Tyr Arg Thr Ile Ser Gly Thr Glu Thr
930 935 940
Thr Leu Leu Ser His Gln Glu Thr Trp Thr Thr Asp Ala Phe His Leu
945 950 955 960
Ala Arg His Gly Val Val Val Arg Gly Ser Met Tyr Ala Ser Leu Thr
965 970 975
Ser Asn Ile Glu Val Tyr Gly His Gly Arg Tyr Glu Tyr Arg Asp Ala
980 985 990
Ser Arg Gly Tyr Gly Leu Ser Ala Gly Ser Lys Val Arg Phe
995 1000 1005

<210> 191
<211> 977
<212> PRT
<213> Chlamydia

<400> 191

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 1               5                  10                  15
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            20                  25                  30
Glu Val Pro Ser Arg Ile Phe Leu Met Pro Asn Ser Val Pro Asp Pro
        35                  40                  45
Thr Lys Glu Ser Leu Ser Asn Lys Ile Ser Leu Thr Gly Asp Thr His
    50                  55                  60
Asn Leu Thr Asn Cys Tyr Leu Asp Asn Leu Arg Tyr Ile Leu Ala Ile
65                  70                  75                  80
Leu Gln Lys Thr Pro Asn Glu Gly Ala Ala Val Thr Ile Thr Asp Tyr
                85                  90                  95
Leu Ser Phe Phe Asp Thr Gln Lys Glu Gly Ile Tyr Phe Ala Lys Asn
            100                 105                 110
Leu Thr Pro Glu Ser Gly Gly Ala Ile Gly Tyr Ala Ser Pro Asn Ser
        115                 120                 125
Pro Thr Val Glu Ile Arg Asp Thr Ile Gly Pro Val Ile Phe Glu Asn
    130                 135                 140
Asn Thr Cys Cys Arg Leu Phe Thr Trp Arg Asn Pro Tyr Ala Ala Asp
145                 150                 155                 160
Lys Ile Arg Glu Gly Gly Ala Ile His Ala Gln Asn Leu Tyr Ile Asn
                165                 170                 175
His Asn His Asp Val Val Gly Phe Met Lys Asn Phe Ser Tyr Val Gln
            180                 185                 190
Gly Gly Ala Ile Ser Thr Ala Asn Thr Phe Val Val Ser Glu Asn Gln
        195                 200                 205
Ser Cys Phe Leu Phe Met Asp Asn Ile Cys Ile Gln Thr Asn Thr Ala
    210                 215                 220
Gly Lys Gly Gly Ala Ile Tyr Ala Gly Thr Ser Asn Ser Phe Glu Ser
225                 230                 235                 240
Asn Asn Cys Asp Leu Phe Phe Ile Asn Asn Ala Cys Cys Ala Gly Gly
                245                 250                 255
Ala Ile Phe Ser Pro Ile Cys Ser Leu Thr Gly Asn Arg Gly Asn Ile
            260                 265                 270
Val Phe Tyr Asn Asn Arg Cys Phe Lys Asn Val Glu Thr Ala Ser Ser
        275                 280                 285
Glu Ala Ser Asp Gly Gly Ala Ile Lys Val Thr Thr Arg Leu Asp Val
    290                 295                 300
Thr Gly Asn Arg Gly Arg Ile Phe Phe Ser Asp Asn Ile Thr Lys Asn
305                 310                 315                 320
Tyr Gly Gly Ala Ile Tyr Ala Pro Val Val Thr Leu Val Asp Asn Gly
                325                 330                 335
Pro Thr Tyr Phe Ile Asn Asn Ile Ala Asn Asn Lys Gly Gly Ala Ile
            340                 345                 350
Tyr Ile Asp Gly Thr Ser Asn Ser Lys Ile Ser Ala Asp Arg His Ala
        355                 360                 365
Ile Ile Phe Asn Glu Asn Ile Val Thr Asn Val Thr Asn Ala Asn Gly
    370                 375                 380
Thr Ser Thr Ser Ala Asn Pro Pro Arg Arg Asn Ala Ile Thr Val Ala
385                 390                 395                 400
Ser Ser Ser Gly Glu Ile Leu Leu Gly Ala Gly Ser Ser Gln Asn Leu
                405                 410                 415
Ile Phe Tyr Asp Pro Ile Glu Val Ser Asn Ala Gly Val Ser Val Ser
            420                 425                 430
Phe Asn Lys Glu Ala Asp Gln Thr Gly Ser Val Val Phe Ser Gly Ala
        435                 440                 445
```

```
Thr Val Asn Ser Ala Asp Phe His Gln Arg Asn Leu Gln Thr Lys Thr
    450                 455                 460
Pro Ala Pro Leu Thr Leu Ser Asn Gly Phe Leu Cys Ile Glu Asp His
465                 470                 475                 480
Ala Gln Leu Thr Val Asn Arg Phe Thr Gln Thr Gly Gly Val Val Ser
                485                 490                 495
Leu Gly Asn Gly Ala Val Leu Ser Cys Tyr Lys Asn Gly Thr Gly Asp
            500                 505                 510
Ser Ala Ser Asn Ala Ser Ile Thr Leu Lys His Ile Gly Leu Asn Leu
        515                 520                 525
Ser Ser Ile Leu Lys Ser Gly Ala Glu Ile Pro Leu Leu Trp Val Glu
    530                 535                 540
Pro Thr Asn Asn Ser Asn Asn Tyr Thr Ala Asp Thr Ala Ala Thr Phe
545                 550                 555                 560
Ser Leu Ser Asp Val Lys Leu Ser Leu Ile Asp Asp Tyr Gly Asn Ser
                565                 570                 575
Pro Tyr Glu Ser Thr Asp Leu Thr His Ala Leu Ser Ser Gln Pro Met
            580                 585                 590
Leu Ser Ile Ser Glu Ala Ser Asp Asn Gln Leu Gln Ser Glu Asn Ile
        595                 600                 605
Asp Phe Ser Gly Leu Asn Val Pro His Tyr Gly Trp Gln Gly Leu Trp
    610                 615                 620
Thr Trp Gly Trp Ala Lys Thr Gln Asp Pro Glu Pro Ala Ser Ser Ala
625                 630                 635                 640
Thr Ile Thr Asp Pro Gln Lys Ala Asn Arg Phe His Arg Thr Leu Leu
                645                 650                 655
Leu Thr Trp Leu Pro Ala Gly Tyr Val Pro Ser Pro Lys His Arg Ser
            660                 665                 670
Pro Leu Ile Ala Asn Thr Leu Trp Gly Asn Met Leu Leu Ala Thr Glu
        675                 680                 685
Ser Leu Lys Asn Ser Ala Glu Leu Thr Pro Ser Gly His Pro Phe Trp
    690                 695                 700
Gly Ile Thr Gly Gly Gly Leu Gly Met Met Val Tyr Gln Asp Pro Arg
705                 710                 715                 720
Glu Asn His Pro Gly Phe His Met Arg Ser Ser Gly Tyr Ser Ala Gly
                725                 730                 735
Met Ile Ala Gly Gln Thr His Thr Phe Ser Leu Lys Phe Ser Gln Thr
            740                 745                 750
Tyr Thr Lys Leu Asn Glu Arg Tyr Ala Lys Asn Asn Val Ser Ser Lys
        755                 760                 765
Asn Tyr Ser Cys Gln Gly Glu Met Leu Phe Ser Leu Gln Glu Gly Phe
    770                 775                 780
Leu Leu Thr Lys Leu Val Gly Leu Tyr Ser Tyr Gly Asp His Asn Cys
785                 790                 795                 800
His His Phe Tyr Thr Gln Gly Glu Asn Leu Thr Ser Gln Gly Thr Phe
                805                 810                 815
Arg Ser Gln Thr Met Gly Gly Ala Val Phe Phe Asp Leu Pro Met Lys
            820                 825                 830
Pro Phe Gly Ser Thr His Ile Leu Thr Ala Pro Phe Leu Gly Ala Leu
        835                 840                 845
Gly Ile Tyr Ser Ser Leu Ser His Phe Thr Glu Val Gly Ala Tyr Pro
    850                 855                 860
Arg Ser Phe Ser Thr Lys Thr Pro Leu Ile Asn Val Leu Val Pro Ile
865                 870                 875                 880
Gly Val Lys Gly Ser Phe Met Asn Ala Thr His Arg Pro Gln Ala Trp
                885                 890                 895
Thr Val Glu Leu Ala Tyr Gln Pro Val Leu Tyr Arg Gln Glu Pro Gly
```

```
            900                 905                 910
Ile Ala Thr Gln Leu Leu Ala Ser Lys Gly Ile Trp Phe Gly Ser Gly
        915                 920                 925
Ser Pro Ser Ser Arg His Ala Met Ser Tyr Lys Ile Ser Gln Gln Thr
    930                 935                 940
Gln Pro Leu Ser Trp Leu Thr Leu His Phe Gln Tyr His Gly Phe Tyr
945                 950                 955                 960
Ser Ser Ser Thr Phe Cys Asn Tyr Leu Asn Gly Glu Ile Ala Leu Arg
                965                 970                 975
Phe
```

<210> 192
<211> 848
<212> PRT
<213> Chlamydia

<400> 192

```
Met Ala Ser His His His His His His Gly Ala Ile Ser Cys Leu Arg
 1               5                  10                  15
Gly Asp Val Val Ile Ser Gly Asn Lys Gly Arg Val Glu Phe Lys Asp
            20                  25                  30
Asn Ile Ala Thr Arg Leu Tyr Val Glu Glu Thr Val Glu Lys Val Glu
        35                  40                  45
Glu Val Glu Pro Ala Pro Glu Gln Lys Asp Asn Asn Glu Leu Ser Phe
    50                  55                  60
Leu Gly Ser Val Glu Gln Ser Phe Ile Thr Ala Ala Asn Gln Ala Leu
65                  70                  75                  80
Phe Ala Ser Glu Asp Gly Asp Leu Ser Pro Glu Ser Ser Ile Ser Ser
                85                  90                  95
Glu Glu Leu Ala Lys Arg Arg Glu Cys Ala Gly Gly Ala Ile Phe Ala
            100                 105                 110
Lys Arg Val Arg Ile Val Asp Asn Gln Glu Ala Val Val Phe Ser Asn
        115                 120                 125
Asn Phe Ser Asp Ile Tyr Gly Gly Ala Ile Phe Thr Gly Ser Leu Arg
    130                 135                 140
Glu Glu Asp Lys Leu Asp Gly Gln Ile Pro Glu Val Leu Ile Ser Gly
145                 150                 155                 160
Asn Ala Gly Asp Val Val Phe Ser Gly Asn Ser Ser Lys Arg Asp Glu
                165                 170                 175
His Leu Pro His Thr Gly Gly Gly Ala Ile Cys Thr Gln Asn Leu Thr
            180                 185                 190
Ile Ser Gln Asn Thr Gly Asn Val Leu Phe Tyr Asn Asn Val Ala Cys
        195                 200                 205
Ser Gly Gly Ala Val Arg Ile Glu Asp His Gly Asn Val Leu Leu Glu
    210                 215                 220
Ala Phe Gly Gly Asp Ile Val Phe Lys Gly Asn Ser Ser Phe Arg Ala
225                 230                 235                 240
Gln Gly Ser Asp Ala Ile Tyr Phe Ala Gly Lys Glu Ser His Ile Thr
                245                 250                 255
Ala Leu Asn Ala Thr Glu Gly His Ala Ile Val Phe His Asp Ala Leu
            260                 265                 270
Val Phe Glu Asn Leu Lys Glu Arg Lys Ser Ala Glu Val Leu Leu Ile
        275                 280                 285
Asn Ser Arg Glu Asn Pro Gly Tyr Thr Gly Ser Ile Arg Phe Leu Glu
    290                 295                 300
Ala Glu Ser Lys Val Pro Gln Cys Ile His Val Gln Gln Gly Ser Leu
```

305 310 315 320
Glu Leu Leu Asn Gly Ala Thr Leu Cys Ser Tyr Gly Phe Lys Gln Asp
325 330 335
Ala Gly Ala Lys Leu Val Leu Ala Ala Gly Ser Lys Leu Lys Ile Leu
340 345 350
Asp Ser Gly Thr Pro Val Gln Gly His Ala Ile Ser Lys Pro Glu Ala
355 360 365
Glu Ile Glu Ser Ser Ser Glu Pro Glu Gly Ala His Ser Leu Trp Ile
370 375 380
Ala Lys Asn Ala Gln Thr Thr Val Pro Met Val Asp Ile His Thr Ile
385 390 395 400
Ser Val Asp Leu Ala Ser Phe Ser Ser Ser Gln Gln Glu Gly Thr Val
405 410 415
Glu Ala Pro Gln Val Ile Val Pro Gly Gly Ser Tyr Val Arg Ser Gly
420 425 430
Glu Leu Asn Leu Glu Leu Val Asn Thr Thr Gly Thr Gly Tyr Glu Asn
435 440 445
His Ala Leu Leu Lys Asn Glu Ala Lys Val Pro Leu Met Ser Phe Val
450 455 460
Ala Ser Ser Asp Glu Ala Ser Ala Glu Ile Ser Asn Leu Ser Val Ser
465 470 475 480
Asp Leu Gln Ile His Val Ala Thr Pro Glu Ile Glu Glu Asp Thr Tyr
485 490 495
Gly His Met Gly Asp Trp Ser Glu Ala Lys Ile Gln Asp Gly Thr Leu
500 505 510
Val Ile Asn Trp Asn Pro Thr Gly Tyr Arg Leu Asp Pro Gln Lys Ala
515 520 525
Gly Ala Leu Val Phe Asn Ala Leu Trp Glu Glu Gly Ala Val Leu Ser
530 535 540
Ala Leu Lys Asn Ala Arg Phe Ala His Asn Leu Thr Ala Gln Arg Met
545 550 555 560
Glu Phe Asp Tyr Ser Thr Asn Val Trp Gly Phe Ala Phe Gly Gly Phe
565 570 575
Arg Thr Leu Ser Ala Glu Asn Leu Val Ala Ile Asp Gly Tyr Lys Gly
580 585 590
Ala Tyr Gly Gly Ala Ser Ala Gly Val Asp Ile Gln Leu Met Glu Asp
595 600 605
Phe Val Leu Gly Val Ser Gly Ala Ala Phe Leu Gly Lys Met Asp Ser
610 615 620
Gln Lys Phe Asp Ala Glu Val Ser Arg Lys Gly Val Val Gly Ser Val
625 630 635 640
Tyr Thr Gly Phe Leu Ala Gly Ser Trp Phe Phe Lys Gly Gln Tyr Ser
645 650 655
Leu Gly Glu Thr Gln Asn Asp Met Lys Thr Arg Tyr Gly Val Leu Gly
660 665 670
Glu Ser Ser Ala Ser Trp Thr Ser Arg Gly Val Leu Ala Asp Ala Leu
675 680 685
Val Glu Tyr Arg Ser Leu Val Gly Pro Val Arg Pro Thr Phe Tyr Ala
690 695 700
Leu His Phe Asn Pro Tyr Val Glu Val Ser Tyr Ala Ser Met Lys Phe
705 710 715 720
Pro Gly Phe Thr Glu Gln Gly Arg Glu Ala Arg Ser Phe Glu Asp Ala
725 730 735
Ser Leu Thr Asn Ile Thr Ile Pro Leu Gly Met Lys Phe Glu Leu Ala
740 745 750
Phe Ile Lys Gly Gln Phe Ser Glu Val Asn Ser Leu Gly Ile Ser Tyr
755 760 765

```
Ala Trp Glu Ala Tyr Arg Lys Val Glu Gly Gly Ala Val Gln Leu Leu
    770                 775                 780
Glu Ala Gly Phe Asp Trp Glu Gly Ala Pro Met Asp Leu Pro Arg Gln
785                 790                 795                 800
Glu Leu Arg Val Ala Leu Glu Asn Asn Thr Glu Trp Ser Ser Tyr Phe
                805                 810                 815
Ser Thr Val Leu Gly Leu Thr Ala Phe Cys Gly Gly Phe Thr Ser Thr
            820                 825                 830
Asp Ser Lys Leu Gly Tyr Glu Ala Asn Thr Gly Leu Arg Leu Ile Phe
        835                 840                 845
```

<210> 193
<211> 778
<212> PRT
<213> Chlamydia

<400> 193

```
Met His His His His His His Gly Leu Ala Ser Cys Val Asp Leu His
 1               5                  10                  15
Ala Gly Gly Gln Ser Val Asn Glu Leu Val Tyr Val Gly Pro Gln Ala
            20                  25                  30
Val Leu Leu Leu Asp Gln Ile Arg Asp Leu Phe Val Gly Ser Lys Asp
        35                  40                  45
Ser Gln Ala Glu Gly Gln Tyr Arg Leu Ile Val Gly Asp Pro Ser Ser
    50                  55                  60
Phe Gln Glu Lys Asp Ala Asp Thr Leu Pro Gly Lys Val Glu Gln Ser
65                  70                  75                  80
Thr Leu Phe Ser Val Thr Asn Pro Val Val Phe Gln Gly Val Asp Gln
                85                  90                  95
Gln Asp Gln Val Ser Ser Gln Gly Leu Ile Cys Ser Phe Thr Ser Ser
            100                 105                 110
Asn Leu Asp Ser Pro Arg Asp Gly Glu Ser Phe Leu Gly Ile Ala Phe
        115                 120                 125
Val Gly Asp Ser Ser Lys Ala Gly Ile Thr Leu Thr Asp Val Lys Ala
    130                 135                 140
Ser Leu Ser Gly Ala Ala Leu Tyr Ser Thr Glu Asp Leu Ile Phe Glu
145                 150                 155                 160
Lys Ile Lys Gly Gly Leu Glu Phe Ala Ser Cys Ser Ser Leu Glu Gln
                165                 170                 175
Gly Gly Ala Cys Ala Ala Gln Ser Ile Leu Ile His Asp Cys Gln Gly
            180                 185                 190
Leu Gln Val Lys His Cys Thr Thr Ala Val Asn Ala Glu Gly Ser Ser
        195                 200                 205
Ala Asn Asp His Leu Gly Phe Gly Gly Gly Ala Phe Phe Val Thr Gly
    210                 215                 220
Ser Leu Ser Gly Glu Lys Ser Leu Tyr Met Pro Ala Gly Asp Met Val
225                 230                 235                 240
Val Ala Asn Cys Asp Gly Ala Ile Ser Phe Glu Gly Asn Ser Ala Asn
                245                 250                 255
Phe Ala Asn Gly Gly Ala Ile Ala Ala Ser Gly Lys Val Leu Phe Val
            260                 265                 270
Ala Asn Asp Lys Lys Thr Ser Phe Ile Glu Asn Arg Ala Leu Ser Gly
        275                 280                 285
Gly Ala Ile Ala Ala Ser Ser Asp Ile Ala Phe Gln Asn Cys Ala Glu
    290                 295                 300
Leu Val Phe Lys Gly Asn Cys Ala Ile Gly Thr Glu Asp Lys Gly Ser
305                 310                 315                 320
```

```
Leu Gly Gly Gly Ala Ile Ser Ser Leu Gly Thr Val Leu Leu Gln Gly
                325                 330                 335
Asn His Gly Ile Thr Cys Asp Lys Asn Glu Ser Ala Ser Gln Gly Gly
            340                 345                 350
Ala Ile Phe Gly Lys Asn Cys Gln Ile Ser Asp Asn Glu Gly Pro Val
        355                 360                 365
Val Phe Arg Asp Ser Thr Ala Cys Leu Gly Gly Gly Ala Ile Ala Ala
    370                 375                 380
Gln Glu Ile Val Ser Ile Gln Asn Asn Gln Ala Gly Ile Ser Phe Glu
385                 390                 395                 400
Gly Gly Lys Ala Ser Phe Gly Gly Gly Ile Ala Cys Gly Ser Phe Ser
                405                 410                 415
Ser Ala Gly Gly Ala Ser Val Leu Gly Thr Ile Asp Ile Ser Lys Asn
            420                 425                 430
Leu Gly Ala Ile Ser Phe Ser Arg Thr Leu Cys Thr Thr Ser Asp Leu
        435                 440                 445
Gly Gln Met Glu Tyr Gln Gly Gly Gly Ala Leu Phe Gly Glu Asn Ile
    450                 455                 460
Ser Leu Ser Glu Asn Ala Gly Val Leu Thr Phe Lys Asp Asn Ile Val
465                 470                 475                 480
Lys Thr Phe Ala Ser Asn Gly Lys Ile Leu Gly Gly Gly Ala Ile Leu
                485                 490                 495
Ala Thr Gly Lys Val Glu Ile Thr Asn Asn Ser Gly Gly Ile Ser Phe
            500                 505                 510
Thr Gly Asn Ala Arg Ala Pro Gln Ala Leu Pro Thr Gln Glu Glu Phe
        515                 520                 525
Pro Leu Phe Ser Lys Lys Glu Gly Arg Pro Leu Ser Ser Gly Tyr Ser
    530                 535                 540
Gly Gly Gly Ala Ile Leu Gly Arg Glu Val Ala Ile Leu His Asn Ala
545                 550                 555                 560
Ala Val Val Phe Glu Gln Asn Arg Leu Gln Cys Ser Glu Glu Glu Ala
                565                 570                 575
Thr Leu Leu Gly Cys Cys Gly Gly Gly Ala Val His Gly Met Asp Ser
            580                 585                 590
Thr Ser Ile Val Gly Asn Ser Ser Val Arg Phe Gly Asn Asn Tyr Ala
        595                 600                 605
Met Gly Gln Gly Val Ser Gly Gly Ala Leu Leu Ser Lys Thr Val Gln
    610                 615                 620
Leu Ala Gly Asn Gly Ser Val Asp Phe Ser Arg Asn Ile Ala Ser Leu
625                 630                 635                 640
Gly Gly Gly Ala Leu Gln Ala Ser Glu Gly Asn Cys Glu Leu Val Asp
                645                 650                 655
Asn Gly Tyr Val Leu Phe Arg Asp Asn Arg Gly Arg Val Tyr Gly Gly
            660                 665                 670
Ala Ile Ser Cys Leu Arg Gly Asp Val Val Ile Ser Gly Asn Lys Gly
        675                 680                 685
Arg Val Glu Phe Lys Asp Asn Ile Ala Thr Arg Leu Tyr Val Glu Glu
    690                 695                 700
Thr Val Glu Lys Val Glu Glu Val Glu Pro Ala Pro Glu Gln Lys Asp
705                 710                 715                 720
Asn Asn Glu Leu Ser Phe Leu Gly Ser Val Glu Gln Ser Phe Ile Thr
                725                 730                 735
Ala Ala Asn Gln Ala Leu Phe Ala Ser Glu Asp Gly Asp Leu Ser Pro
            740                 745                 750
Glu Ser Ser Ile Ser Ser Glu Glu Leu Ala Lys Arg Arg Glu Cys Ala
        755                 760                 765
Gly Gly Ala Asp Ser Ser Arg Ser Gly Cys
```

770 775

<210> 194
<211> 948
<212> PRT
<213> Chlamydia

<400> 194
Met Ala Ser Met His His His His His His Val Lys Ile Glu Asn Phe
1 5 10 15
Ser Gly Gln Gly Ile Phe Ser Gly Asn Lys Ala Ile Asp Asn Thr Thr
20 25 30
Glu Gly Ser Ser Ser Lys Ser Asn Val Leu Gly Gly Ala Val Tyr Ala
35 40 45
Lys Thr Leu Phe Asn Leu Asp Ser Gly Ser Ser Arg Arg Thr Val Thr
50 55 60
Phe Ser Gly Asn Thr Val Ser Ser Gln Ser Thr Thr Gly Gln Val Ala
65 70 75 80
Gly Gly Ala Ile Tyr Ser Pro Thr Val Thr Ile Ala Thr Pro Val Val
85 90 95
Phe Ser Lys Asn Ser Ala Thr Asn Asn Ala Asn Asn Ala Thr Asp Thr
100 105 110
Gln Arg Lys Asp Thr Phe Gly Gly Ala Ile Gly Ala Thr Ser Ala Val
115 120 125
Ser Leu Ser Gly Gly Ala His Phe Leu Glu Asn Val Ala Asp Leu Gly
130 135 140
Ser Ala Ile Gly Leu Val Pro Asp Thr Gln Asn Thr Glu Thr Val Lys
145 150 155 160
Leu Glu Ser Gly Ser Tyr Tyr Phe Glu Lys Asn Lys Ala Leu Lys Arg
165 170 175
Ala Thr Ile Tyr Ala Pro Val Val Ser Ile Lys Ala Tyr Thr Ala Thr
180 185 190
Phe Asn Gln Asn Arg Ser Leu Glu Glu Gly Ser Ala Ile Tyr Phe Thr
195 200 205
Lys Glu Ala Ser Ile Glu Ser Leu Gly Ser Val Leu Phe Thr Gly Asn
210 215 220
Leu Val Thr Pro Thr Leu Ser Thr Thr Thr Glu Gly Thr Pro Ala Thr
225 230 235 240
Thr Ser Gly Asp Val Thr Lys Tyr Gly Ala Ala Ile Phe Gly Gln Ile
245 250 255
Ala Ser Ser Asn Gly Ser Gln Thr Asp Asn Leu Pro Leu Lys Leu Ile
260 265 270
Ala Ser Gly Gly Asn Ile Cys Phe Arg Asn Asn Glu Tyr Arg Pro Thr
275 280 285
Ser Ser Asp Thr Gly Thr Ser Thr Phe Cys Ser Ile Ala Gly Asp Val
290 295 300
Lys Leu Thr Met Gln Ala Ala Lys Gly Lys Thr Ile Ser Phe Phe Asp
305 310 315 320
Ala Ile Arg Thr Ser Thr Lys Lys Thr Gly Thr Gln Ala Thr Ala Tyr
325 330 335
Asp Thr Leu Asp Ile Asn Lys Ser Glu Asp Ser Glu Thr Val Asn Ser
340 345 350
Ala Phe Thr Gly Thr Ile Leu Phe Ser Ser Glu Leu His Glu Asn Lys
355 360 365
Ser Tyr Ile Pro Gln Asn Val Val Leu His Ser Gly Ser Leu Val Leu
370 375 380
Lys Pro Asn Thr Glu Leu His Val Ile Ser Phe Glu Gln Lys Glu Gly

```
385                 390                 395                 400
Ser Ser Leu Val Met Thr Pro Gly Ser Val Leu Ser Asn Gln Thr Val
                405                 410                 415
Ala Asp Gly Ala Leu Val Ile Asn Asn Met Thr Ile Asp Leu Ser Ser
            420                 425                 430
Val Glu Lys Asn Gly Ile Ala Glu Gly Asn Ile Phe Thr Pro Pro Glu
        435                 440                 445
Leu Arg Ile Ile Asp Thr Thr Thr Ser Gly Ser Gly Gly Thr Pro Ser
    450                 455                 460
Thr Asp Ser Glu Ser Asn Gln Asn Ser Asp Asp Thr Lys Glu Gln Asn
465                 470                 475                 480
Asn Asn Asp Ala Ser Asn Gln Gly Glu Ser Ala Asn Gly Ser Ser Ser
                485                 490                 495
Pro Ala Val Ala Ala Ala His Thr Ser Arg Thr Arg Asn Phe Ala Ala
            500                 505                 510
Ala Ala Thr Ala Thr Pro Thr Thr Thr Pro Thr Ala Thr Thr Thr Thr
        515                 520                 525
Ser Asn Gln Val Ile Leu Gly Gly Glu Ile Lys Leu Ile Asp Pro Asn
    530                 535                 540
Gly Thr Phe Phe Gln Asn Pro Ala Leu Arg Ser Asp Gln Gln Ile Ser
545                 550                 555                 560
Leu Leu Val Leu Pro Thr Asp Ser Ser Lys Met Gln Ala Gln Lys Ile
                565                 570                 575
Val Leu Thr Gly Asp Ile Ala Pro Gln Lys Gly Tyr Thr Gly Thr Leu
            580                 585                 590
Thr Leu Asp Pro Asp Gln Leu Gln Asn Gly Thr Ile Ser Ala Leu Trp
        595                 600                 605
Lys Phe Asp Ser Tyr Arg Gln Trp Ala Tyr Val Pro Arg Asp Asn His
    610                 615                 620
Phe Tyr Ala Asn Ser Ile Leu Gly Ser Gln Met Ser Met Val Thr Val
625                 630                 635                 640
Lys Gln Gly Leu Leu Asn Asp Lys Met Asn Leu Ala Arg Phe Asp Glu
                645                 650                 655
Val Ser Tyr Asn Asn Leu Trp Ile Ser Gly Leu Gly Thr Met Leu Ser
            660                 665                 670
Gln Val Gly Thr Pro Thr Ser Glu Glu Phe Thr Tyr Tyr Ser Arg Gly
        675                 680                 685
Ala Ser Val Ala Leu Asp Ala Lys Pro Ala His Asp Val Ile Val Gly
    690                 695                 700
Ala Ala Phe Ser Lys Met Ile Gly Lys Thr Lys Ser Leu Lys Arg Glu
705                 710                 715                 720
Asn Asn Tyr Thr His Lys Gly Ser Glu Tyr Ser Tyr Gln Ala Ser Val
                725                 730                 735
Tyr Gly Gly Lys Pro Phe His Phe Val Ile Asn Lys Lys Thr Glu Lys
            740                 745                 750
Ser Leu Pro Leu Leu Leu Gln Gly Val Ile Ser Tyr Gly Tyr Ile Lys
        755                 760                 765
His Asp Thr Val Thr His Tyr Pro Thr Ile Arg Glu Arg Asn Gln Gly
    770                 775                 780
Glu Trp Glu Asp Leu Gly Trp Leu Thr Ala Leu Arg Val Ser Ser Val
785                 790                 795                 800
Leu Arg Thr Pro Ala Gln Gly Asp Thr Lys Arg Ile Thr Val Tyr Gly
                805                 810                 815
Glu Leu Glu Tyr Ser Ser Ile Arg Gln Lys Gln Phe Thr Glu Thr Glu
            820                 825                 830
Tyr Asp Pro Arg Tyr Phe Asp Asn Cys Thr Tyr Arg Asn Leu Ala Ile
        835                 840                 845
```

```
Pro Met Gly Leu Ala Phe Glu Gly Glu Leu Ser Gly Asn Asp Ile Leu
    850                 855                 860
Met Tyr Asn Arg Phe Ser Val Ala Tyr Met Pro Ser Ile Tyr Arg Asn
865                 870                 875                 880
Ser Pro Thr Cys Lys Tyr Gln Val Leu Ser Ser Gly Glu Gly Gly Glu
                885                 890                 895
Ile Ile Cys Gly Val Pro Thr Arg Asn Ser Ala Arg Gly Glu Tyr Ser
            900                 905                 910
Thr Gln Leu Tyr Pro Gly Pro Leu Trp Thr Leu Tyr Gly Ser Tyr Thr
        915                 920                 925
Ile Glu Ala Asp Ala His Thr Leu Ala His Met Met Asn Cys Gly Ala
    930                 935                 940
Arg Met Thr Phe
945
```

<210> 195
<211> 821
<212> PRT
<213> Chlamydia

<400> 195

```
Met His His His His His His Glu Ala Ser Ser Ile Gln Asp Gln Ile
 1               5                  10                  15
Lys Asn Thr Asp Cys Asn Val Ser Lys Val Gly Tyr Ser Thr Ser Gln
            20                  25                  30
Ala Phe Thr Asp Met Met Leu Ala Asp Asn Thr Glu Tyr Arg Ala Ala
        35                  40                  45
Asp Ser Val Ser Phe Tyr Asp Phe Ser Thr Ser Ser Gly Leu Pro Arg
    50                  55                  60
Lys His Leu Ser Ser Ser Ser Glu Ala Ser Pro Thr Thr Glu Gly Val
65                  70                  75                  80
Ser Ser Ser Ser Ser Gly Glu Asn Thr Glu Asn Ser Gln Asp Ser Ala
                85                  90                  95
Pro Ser Ser Gly Glu Thr Asp Lys Lys Thr Glu Glu Glu Leu Asp Asn
            100                 105                 110
Gly Gly Ile Ile Tyr Ala Arg Glu Lys Leu Thr Ile Ser Glu Ser Gln
        115                 120                 125
Asp Ser Leu Ser Asn Pro Ser Ile Glu Leu His Asp Asn Ser Phe Phe
    130                 135                 140
Phe Gly Glu Gly Glu Val Ile Phe Asp His Arg Val Ala Leu Lys Asn
145                 150                 155                 160
Gly Gly Ala Ile Tyr Gly Glu Lys Glu Val Val Phe Glu Asn Ile Lys
                165                 170                 175
Ser Leu Leu Val Glu Val Asn Ile Ser Val Glu Lys Gly Gly Ser Val
            180                 185                 190
Tyr Ala Lys Glu Arg Val Ser Leu Glu Asn Val Thr Glu Ala Thr Phe
        195                 200                 205
Ser Ser Asn Gly Gly Glu Gln Gly Gly Gly Gly Ile Tyr Ser Glu Gln
    210                 215                 220
Asp Met Leu Ile Ser Asp Cys Asn Asn Val His Phe Gln Gly Asn Ala
225                 230                 235                 240
Ala Gly Ala Thr Ala Val Lys Gln Cys Leu Asp Glu Glu Met Ile Val
                245                 250                 255
Leu Leu Thr Glu Cys Val Asp Ser Leu Ser Glu Asp Thr Leu Asp Ser
            260                 265                 270
Thr Pro Glu Thr Glu Gln Thr Lys Ser Asn Gly Asn Gln Asp Gly Ser
        275                 280                 285
```

```
Ser Glu Thr Lys Asp Thr Gln Val Ser Glu Ser Pro Glu Ser Thr Pro
    290                 295                 300
Ser Pro Asp Asp Val Leu Gly Lys Gly Gly Gly Ile Tyr Thr Glu Lys
305                 310                 315                 320
Ser Leu Thr Ile Thr Gly Ile Thr Gly Thr Ile Asp Phe Val Ser Asn
                325                 330                 335
Ile Ala Thr Asp Ser Gly Ala Gly Val Phe Thr Lys Glu Asn Leu Ser
            340                 345                 350
Cys Thr Asn Thr Asn Ser Leu Gln Phe Leu Lys Asn Ser Ala Gly Gln
        355                 360                 365
His Gly Gly Gly Ala Tyr Val Thr Gln Thr Met Ser Val Thr Asn Thr
    370                 375                 380
Thr Ser Glu Ser Ile Thr Thr Pro Pro Leu Val Gly Glu Val Ile Phe
385                 390                 395                 400
Ser Glu Asn Thr Ala Lys Gly His Gly Gly Gly Ile Cys Thr Asn Lys
                405                 410                 415
Leu Ser Leu Ser Asn Leu Lys Thr Val Thr Leu Thr Lys Asn Ser Ala
            420                 425                 430
Lys Glu Ser Gly Gly Ala Ile Phe Thr Asp Leu Ala Ser Ile Pro Thr
        435                 440                 445
Thr Asp Thr Pro Glu Ser Ser Thr Pro Ser Ser Ser Ser Pro Ala Ser
    450                 455                 460
Thr Pro Glu Val Val Ala Ser Ala Lys Ile Asn Arg Phe Phe Ala Ser
465                 470                 475                 480
Thr Ala Glu Pro Ala Ala Pro Ser Leu Thr Glu Ala Glu Ser Asp Gln
                485                 490                 495
Thr Asp Gln Thr Glu Thr Ser Asp Thr Asn Ser Asp Ile Asp Val Ser
            500                 505                 510
Ile Glu Asn Ile Leu Asn Val Ala Ile Asn Gln Asn Thr Ser Ala Lys
        515                 520                 525
Lys Gly Gly Ala Ile Tyr Gly Lys Lys Ala Lys Leu Ser Arg Ile Asn
    530                 535                 540
Asn Leu Glu Leu Ser Gly Asn Ser Ser Gln Asp Val Gly Gly Gly Leu
545                 550                 555                 560
Cys Leu Thr Glu Ser Val Glu Phe Asp Ala Ile Gly Ser Leu Leu Ser
                565                 570                 575
His Tyr Asn Ser Ala Ala Lys Glu Gly Gly Val Ile His Ser Lys Thr
            580                 585                 590
Val Thr Leu Ser Asn Leu Lys Ser Thr Phe Thr Phe Ala Asp Asn Thr
        595                 600                 605
Val Lys Ala Ile Val Glu Ser Thr Pro Glu Ala Pro Glu Glu Ile Pro
    610                 615                 620
Pro Val Glu Gly Glu Glu Ser Thr Ala Thr Glu Asn Pro Asn Ser Asn
625                 630                 635                 640
Thr Glu Gly Ser Ser Ala Asn Thr Asn Leu Glu Gly Ser Gln Gly Asp
                645                 650                 655
Thr Ala Asp Thr Gly Thr Gly Val Val Asn Asn Glu Ser Gln Asp Thr
            660                 665                 670
Ser Asp Thr Gly Asn Ala Glu Ser Gly Glu Gln Leu Gln Asp Ser Thr
        675                 680                 685
Gln Ser Asn Glu Glu Asn Thr Leu Pro Asn Ser Ser Ile Asp Gln Ser
    690                 695                 700
Asn Glu Asn Thr Asp Glu Ser Ser Asp Ser His Thr Glu Glu Ile Thr
705                 710                 715                 720
Asp Glu Ser Val Ser Ser Ser Ser Lys Ser Gly Ser Ser Thr Pro Gln
                725                 730                 735
Asp Gly Gly Ala Ala Ser Ser Gly Ala Pro Ser Gly Asp Gln Ser Ile
```

```
            740                 745                 750
Ser Ala Asn Ala Cys Leu Ala Lys Ser Tyr Ala Ala Ser Thr Asp Ser
        755                 760                 765
Ser Pro Val Ser Asn Ser Ser Gly Ser Asp Val Thr Ala Ser Ser Asp
    770                 775                 780
Asn Pro Asp Ser Ser Ser Ser Gly Asp Ser Ala Gly Asp Ser Glu Gly
785                 790                 795                 800
Pro Thr Glu Pro Glu Ala Gly Ser Thr Thr Glu Thr Pro Thr Leu Ile
                805                 810                 815
Gly Gly Gly Ala Ile
            820
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<210> 196
<211> 525
<212> PRT
<213> Chlamydia

<400> 196

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Met His His His His His His Thr Ala Ala Ser Asp Asn Phe Gln Leu
 1               5                  10                  15
Ser Gln Gly Gly Gln Gly Phe Ala Ile Pro Ile Gly Gln Ala Met Ala
            20                  25                  30
Ile Ala Gly Gln Ile Lys Leu Pro Thr Val His Ile Gly Pro Thr Ala
        35                  40                  45
Phe Leu Gly Leu Gly Val Val Asp Asn Asn Gly Asn Gly Ala Arg Val
    50                  55                  60
Gln Arg Val Val Gly Ser Ala Pro Ala Ala Ser Leu Gly Ile Ser Thr
65                  70                  75                  80
Gly Asp Val Ile Thr Ala Val Asp Gly Ala Pro Ile Asn Ser Ala Thr
                85                  90                  95
Ala Met Ala Asp Ala Leu Asn Gly His His Pro Gly Asp Val Ile Ser
            100                 105                 110
Val Thr Trp Gln Thr Lys Ser Gly Gly Thr Arg Thr Gly Asn Val Thr
        115                 120                 125
Leu Ala Glu Gly Pro Pro Ala Glu Phe Pro Leu Val Pro Arg Gly Ser
    130                 135                 140
Pro Leu Pro Val Gly Asn Pro Ala Glu Pro Ser Leu Leu Ile Asp Gly
145                 150                 155                 160
Thr Met Trp Glu Gly Ala Ser Gly Asp Pro Cys Asp Pro Cys Ala Thr
                165                 170                 175
Trp Cys Asp Ala Ile Ser Ile Arg Ala Gly Tyr Tyr Gly Asp Tyr Val
            180                 185                 190
Phe Asp Arg Val Leu Lys Val Asp Val Asn Lys Thr Phe Ser Gly Met
        195                 200                 205
Ala Ala Thr Pro Thr Gln Ala Ile Gly Asn Ala Ser Asn Thr Asn Gln
    210                 215                 220
Pro Glu Ala Asn Gly Arg Pro Asn Ile Ala Tyr Gly Arg His Met Gln
225                 230                 235                 240
Asp Ala Glu Trp Phe Ser Asn Ala Ala Phe Leu Ala Leu Asn Ile Trp
                245                 250                 255
Asp Arg Phe Asp Ile Phe Cys Thr Leu Gly Ala Ser Asn Gly Tyr Phe
            260                 265                 270
Lys Ala Ser Ser Ala Ala Phe Asn Leu Val Gly Leu Ile Gly Phe Ser
        275                 280                 285
Ala Ala Ser Ser Ile Ser Thr Asp Leu Pro Met Gln Leu Pro Asn Val
    290                 295                 300
Gly Ile Thr Gln Gly Val Val Glu Phe Tyr Thr Asp Thr Ser Phe Ser
```

```
305                 310                 315                 320
Trp Ser Val Gly Ala Arg Gly Ala Leu Trp Glu Cys Gly Cys Ala Thr
                325                 330                 335
Leu Gly Ala Glu Phe Gln Tyr Ala Gln Ser Asn Pro Lys Ile Glu Met
            340                 345                 350
Leu Asn Val Thr Ser Ser Pro Ala Gln Phe Val Ile His Lys Pro Arg
        355                 360                 365
Gly Tyr Lys Gly Ala Ser Ser Asn Phe Pro Leu Pro Ile Thr Ala Gly
    370                 375                 380
Thr Thr Glu Ala Thr Asp Thr Lys Ser Ala Thr Ile Lys Tyr His Glu
385                 390                 395                 400
Trp Gln Val Gly Leu Ala Leu Ser Tyr Arg Leu Asn Met Leu Val Pro
                405                 410                 415
Tyr Ile Gly Val Asn Trp Ser Arg Ala Thr Phe Asp Ala Asp Thr Ile
            420                 425                 430
Arg Ile Ala Gln Pro Lys Leu Lys Ser Glu Ile Leu Asn Ile Thr Thr
        435                 440                 445
Trp Asn Pro Ser Leu Ile Gly Ser Thr Thr Ala Leu Pro Asn Asn Ser
    450                 455                 460
Gly Lys Asp Val Leu Ser Asp Val Leu Gln Ile Ala Ser Ile Gln Ile
465                 470                 475                 480
Asn Lys Met Lys Ser Arg Lys Ala Cys Gly Val Ala Val Gly Ala Thr
                485                 490                 495
Leu Ile Asp Ala Asp Lys Trp Ser Ile Thr Gly Glu Ala Arg Leu Ile
            500                 505                 510
Asn Glu Arg Ala Ala His Met Asn Ala Gln Phe Arg Phe
        515                 520                 525
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<210> 197
<211> 43
<212> DNA
<213> Chlamydia

<400> 197
gataggcgcg ccgcaatcat gaaatttatg tcagctactg ctg 43

<210> 198
<211> 34
<212> DNA
<213> Chlamydia

<400> 198
cagaacgcgt ttagaatgtc atacgagcac cgca 34

<210> 199
<211> 6
<212> DNA
<213> Chlamydia

<400> 199
gcaatc 6

<210> 200
<211> 34
<212> DNA
<213> Chlamydia

<400> 200
tgcaatcatg agttcgcaga aagatataaa aagc 34

<210> 201
<211> 38
<212> DNA
<213> Chlamydia

<400> 201
cagagctagc ttaaaagatc aatcgcaatc cagtattc 38

<210> 202
<211> 5
<212> DNA
<213> Chlamydia

<400> 202
caatc 5

<210> 203
<211> 31
<212> DNA
<213> Chlamydia

<400> 203
tgcaatcatg aaaaaagcgt ttttcttttt c 31

<210> 204
<211> 31
<212> DNA
<213> Chlamydia

<400> 204
cagaacgcgt ctagaatcgc agagcaattt c 31

<210> 205
<211> 30
<212> DNA
<213> Chlamydia

<400> 205
gtgcaatcat gattcctcaa ggaatttacg 30

<210> 206
<211> 31
<212> DNA
<213> Chlamydia

<400> 206
cagaacgcgt ttagaaccgg actttacttc c 31

<210> 207
<211> 50
<212> DNA
<213> Chlamydia

<400> 207

cagacatatg catcaccatc accatcacga ggcgagctcg atccaagatc 50

<210> 208
<211> 40
<212> DNA
<213> Chlamydia

<400> 208
cagaggtacc tcagatagca ctctctccta ttaaagtagg 40

<210> 209
<211> 55
<212> DNA
<213> Chlamydia

<400> 209
cagagctagc atgcatcacc atcaccatca cgttaagatt gagaacttct ctggc 55

<210> 210
<211> 35
<212> DNA
<213> Chlamydia

<400> 210
cagaggtacc ttagaatgtc atacgagcac cgcag 35

<210> 211
<211> 36
<212> DNA
<213> Chlamydia

<400> 211
cagacatatg catcaccatc accatcacgg gttagc 36

<210> 212
<211> 35
<212> DNA
<213> Chlamydia

<400> 212
cagaggtacc tcagctcctc cagcacactc tcttc 35

<210> 213
<211> 51
<212> DNA
<213> Chlamydia

<400> 213
cagagctagc catcaccatc accatcacgg tgctatttct tgcttacgtg g 51

<210> 214
<211> 38
<212> DNA
<213> Chlamydia

<400> 214
cagaggtact taaaagatca atcgcaatcc agtattcg 38

<210> 215
<211> 48
<212> DNA
<213> Chlamydia

<400> 215
cagaggatcc acatcaccat caccatcacg gactagctag agaggttc 48

<210> 216
<211> 31
<212> DNA
<213> Chlamydia

<400> 216
cagagaattc ctagaatcgc agagcaattt c 31

<210> 217
<211> 7
<212> DNA
<213> Chlamydia

<400> 217
tgcaatc 7

<210> 218
<211> 22
<212> PRT
<213> Chlamydia

<400> 218
Met Ala Ser Met Thr Gly Gly Gln Gln Met Gly Arg Asp Ser Ser Leu
1 5 10 15
Val Pro Ser Ser Asp Pro
20

<210> 219
<211> 51
<212> DNA
<213> Chlamydia

<400> 219
cagaggtacc gcatcaccat caccatcaca tgattcctca aggaatttac g 51

<210> 220
<211> 33
<212> DNA
<213> Chlamydia

<400> 220
cagagcggcc gcttagaacc ggactttact tcc 33

<210> 221
<211> 24
<212> PRT
<213> Chlamydia

<400> 221
Met Ala Ser Met Thr Gly Gly Gln Gln Asn Gly Arg Asp Ser Ser Leu
1 5 10 15
Val Pro His His His His His His
20

<210> 222
<211> 46
<212> DNA
<213> Chlamydia

<400> 222
cagagctagc catcaccatc accatcacct ctttggccag gatccc 46

<210> 223
<211> 30
<212> DNA
<213> Chlamydia

<400> 223
cagaactagt ctagaacctg taagtggtcc 30

<210> 224
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> Made in a lab

<400> 224
Met Ser Gln Lys Asn Lys Asn Ser Ala Phe Met His Pro Val Asn Ile
1 5 10 15
Ser Thr Asp Leu
20

<210> 225
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> Made in a lab

<400> 225
Lys Asn Ser Ala Phe Met His Pro Val Asn Ile Ser Thr Asp Leu Ala
1 5 10 15
Val Ile Val Gly
20

<210> 226
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> Made in a lab

<400> 226
His Pro Val Asn Ile Ser Thr Asp Leu Ala Val Ile Val Gly Lys Gly
1 5 10 15
Pro Met Pro Arg
20

<210> 227
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> Made in a lab

<400> 227
Ser Thr Asp Leu Ala Val Ile Val Gly Lys Gly Pro Met Pro Arg Thr
1 5 10 15
Glu Ile Val Lys
20

<210> 228
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> Made in a lab

<400> 228
Val Ile Val Gly Lys Gly Pro Met Pro Arg Thr Glu Ile Val Lys Lys
1 5 10 15
Val Trp Glu Tyr
20

<210> 229
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> Made in a lab

<400> 229
Gly Pro Met Pro Arg Thr Glu Ile Val Lys Lys Val Trp Glu Tyr Ile
1 5 10 15
Lys Lys His Asn
20

<210> 230
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> Made in a lab

<400> 230
Ile Lys Lys His Asn Cys Gln Asp Gln Lys Asn Lys Arg Asn Ile Leu
1 5 10 15
Pro Asp Ala Asn
20

<210> 231
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> Made in a lab

<400> 231
Asn Cys Gln Asp Gln Lys Asn Lys Arg Asn Ile Leu Pro Asp Ala Asn
1 5 10 15
Leu Ala Lys Val
20

<210> 232
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> Made in a lab

<400> 232
Lys Asn Lys Arg Asn Ile Leu Pro Asp Ala Asn Leu Ala Lys Val Phe
1 5 10 15
Gly Ser Ser Asp
20

<210> 233
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> Made in a lab

<400> 233
Ile Leu Pro Asp Ala Asn Leu Ala Lys Val Phe Gly Ser Ser Asp Pro
1 5 10 15
Ile Asp Met Phe
20

<210> 234
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> Made in a lab

<400> 234

Asn Leu Ala Lys Val Phe Gly Ser Ser Asp Pro Ile Asp Met Phe Gln
1 5 10 15
Met Thr Lys Ala
20

<210> 235
<211> 22
<212> PRT
<213> Artificial Sequence

<220>
<223> Made in a lab

<400> 235
Phe Gly Ser Ser Asp Pro Ile Asp Met Phe Gln Met Thr Lys Ala Leu
1 5 10 15
Ser Lys His Ile Val Lys
20

<210> 236
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> Made in a lab

<400> 236
Val Glu Ile Thr Gln Ala Val Pro Lys Tyr Ala Thr Val Gly Ser Pro
1 5 10 15
Tyr Pro Val Glu
20

<210> 237
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> Made in a lab

<400> 237
Ala Val Pro Lys Tyr Ala Thr Val Gly Ser Pro Tyr Pro Val Glu Ile
1 5 10 15
Thr Ala Thr Gly
20

<210> 238
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> Made in a lab

<400> 238
Ala Thr Val Gly Ser Pro Tyr Pro Val Glu Ile Thr Ala Thr Gly Lys

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 1               5                   10                  15
Arg Asp Cys Val
            20

<210> 239
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> Made in a lab

<400> 239
Pro Tyr Pro Val Glu Ile Thr Ala Thr Gly Lys Arg Asp Cys Val Asp
 1               5                   10                  15
Val Ile Ile Thr
            20

<210> 240
<211> 21
<212> PRT
<213> Artificial Sequence

<220>
<223> Made in a lab

<400> 240
Ile Thr Ala Thr Gly Lys Arg Asp Cys Val Asp Val Ile Ile Thr Gln
 1               5                   10                  15
Gln Leu Pro Cys Glu
            20

<210> 241
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> Made in a lab

<400> 241
Lys Arg Asp Cys Val Asp Val Ile Ile Thr Gln Gln Leu Pro Cys Glu
 1               5                   10                  15
Ala Glu Phe Val
            20

<210> 242
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> Made in a lab

<400> 242
Asp Val Ile Ile Thr Gln Gln Leu Pro Cys Glu Ala Glu Phe Val Arg
 1               5                   10                  15
```

Ser Asp Pro Ala
20

<210> 243
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> Made in a lab

<400> 243
Thr Gln Gln Leu Pro Cys Glu Ala Glu Phe Val Arg Ser Asp Pro Ala
1 5 10 15
Thr Thr Pro Thr
20

<210> 244
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> Made in a lab

<400> 244
Cys Glu Ala Glu Phe Val Arg Ser Asp Pro Ala Thr Thr Pro Thr Ala
1 5 10 15
Asp Gly Lys Leu
20

<210> 245
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> Made in a lab

<400> 245
Val Arg Ser Asp Pro Ala Thr Thr Pro Thr Ala Asp Gly Lys Leu Val
1 5 10 15
Trp Lys Ile Asp
20

<210> 246
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> Made in a lab

<400> 246
Ala Thr Thr Pro Thr Ala Asp Gly Lys Leu Val Trp Lys Ile Asp Arg
1 5 10 15
Leu Gly Gln Gly

20

<210> 247
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> Made in a lab

<400> 247
Ala Asp Gly Lys Leu Val Trp Lys Ile Asp Arg Leu Gly Gln Gly Glu
1 5 10 15
Lys Ser Lys Ile
20

<210> 248
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> Made in a lab

<400> 248
Val Trp Lys Ile Asp Arg Leu Gly Gln Gly Glu Lys Ser Lys Ile Thr
1 5 10 15
Val Trp Val Lys
20

<210> 249
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> Made in a lab

<400> 249
Arg Leu Gly Gln Gly Glu Lys Ser Lys Ile Thr Val Trp Val Lys Pro
1 5 10 15
Leu Lys Glu Gly
20

<210> 250
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> Made in a lab

<400> 250
Gly Glu Lys Ser Lys Ile Thr Val Trp Val Lys Pro Leu Lys Glu Gly
1 5 10 15
Cys Cys Phe Thr
20

<210> 251
<211> 16
<212> PRT
<213> Artificial Sequence

<220>
<223> Made in a lab

<400> 251
Gly Glu Lys Ser Lys Ile Thr Val Trp Val Lys Pro Leu Lys Glu Gly
 1               5                  10                  15

<210> 252
<211> 12
<212> PRT
<213> Artificial Sequence

<220>
<223> Made in a lab

<400> 252
Lys Ile Thr Val Trp Val Lys Pro Leu Lys Glu Gly
 1               5                  10

<210> 253
<211> 16
<212> PRT
<213> Artificial Sequence

<220>
<223> Made in a lab

<400> 253
Gly Asp Lys Cys Lys Ile Thr Val Trp Val Lys Pro Leu Lys Glu Gly
 1               5                  10                  15

<210> 254
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> Made in a lab

<400> 254
Thr Glu Tyr Pro Leu Leu Ala Asp Pro Ser Phe Lys Ile Ser Glu Ala
 1               5                  10                  15
Phe Gly Val Leu
            20

<210> 255
<211> 20
<212> PRT
<213> Artificial Sequence

<220>

<223> Made in a lab

<400> 255
Leu Ala Asp Pro Ser Phe Lys Ile Ser Glu Ala Phe Gly Val Leu Asn
 1               5                  10                  15
Pro Glu Gly Ser
            20

<210> 256
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> Made in a lab

<400> 256
Phe Lys Ile Ser Glu Ala Phe Gly Val Leu Asn Pro Glu Gly Ser Leu
 1               5                  10                  15
Ala Leu Arg Ala
            20

<210> 257
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> Made in a lab

<400> 257
Ala Phe Gly Val Leu Asn Pro Glu Gly Ser Leu Ala Leu Arg Ala Thr
 1               5                  10                  15
Phe Leu Ile Asp
            20

<210> 258
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> Made in a lab

<400> 258
Asn Pro Glu Gly Ser Leu Ala Leu Arg Ala Thr Phe Leu Ile Asp Lys
 1               5                  10                  15
His Gly Val Ile
            20

<210> 259
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> Made in a lab

<400> 259
Leu Ala Leu Arg Ala Thr Phe Leu Ile Asp Lys His Gly Val Ile Arg
1 5 10 15
His Ala Val Ile
20

<210> 260
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> Made in a lab

<400> 260
Thr Phe Leu Ile Asp Lys His Gly Val Ile Arg His Ala Val Ile Asn
1 5 10 15
Asp Leu Pro Leu
20

<210> 261
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> Made in a lab

<400> 261
Lys His Gly Val Ile Arg His Ala Val Ile Asn Asp Leu Pro Leu Gly
1 5 10 15
Arg Ser Ile Asp
20

<210> 262
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> Made in a lab

<400> 262
Arg His Ala Val Ile Asn Asp Leu Pro Leu Gly Arg Ser Ile Asp Glu
1 5 10 15
Glu Leu Arg Ile
20

<210> 263
<211> 897
<212> DNA
<213> Chlamydia

<220>
<221> misc_feature
<222> (1)...(897)

<223> n = A,T,C or G

<400> 263
atggcttcta tatgcggacg tttagggtct ggtacaggga atgctctaaa agctttttt 60
acacagccca acaataaaat ggcaagggta gtaaataaga cgaagggagt ggataagact 120
attaaggttg ccaagtctgc tgccgaattg accgcaaata ttttggaaca agctggaggc 180
gcgggctctt ccgcacacat tacagcttcc caagtgtcca aaggattagg ggatgcgaga 240
actgttgtcg ctttagggaa tgcctttaac ggagcgttgc caggaacagt tcaaagtgcg 300
caaagcttct tctctcacat gaaagctgct agtcagaaaa cgcaagaagg ggatgagggg 360
ctcacagcag atctttgtgt gtctcataag cgcagagcgg ctgcggctgt ctgtagcatc 420
atcggaggaa ttacctacct cgcgacattc ggagctatcc gtccgattct gtttgtcaac 480
aaaatgctgg caaaaccgtt tctttcttcc caaactaaag caaatatggg atcttctgtt 540
agctatatta tggcggctaa ccatgcagcg tctgtggtgg gtgctggact cgctatcagt 600
gcgnaaagag cagattgcga agcccgctgc gctcgtattg cgagagaaga gtcgttactc 660
gaagtgccgg gagaggaaaa tgcttgcgag aagaaagtcg ctggagagaa agccaagacg 720
ttcacgcgca tcaagtatgc actcctcact atgctcgaga agtttttgga atgcgttgcc 780
gacgttttca aattggtgcc gctgcctatt acaatgggta ttcgtgcgat tgtggctgct 840
ggatgtacgt tcacttctgc aattattgga ttgtgcactt tctgcgccag agcataa 897

<210> 264
<211> 298
<212> PRT
<213> Chlamydia

<220>
<221> VARIANT
<222> (1)...(298)
<223> Xaa = Any Amino Acid

<400> 264
Met Ala Ser Ile Cys Gly Arg Leu Gly Ser Gly Thr Gly Asn Ala Leu
 1               5                  10                  15
Lys Ala Phe Phe Thr Gln Pro Asn Asn Lys Met Ala Arg Val Val Asn
            20                  25                  30
Lys Thr Lys Gly Val Asp Lys Thr Ile Lys Val Ala Lys Ser Ala Ala
        35                  40                  45
Glu Leu Thr Ala Asn Ile Leu Glu Gln Ala Gly Gly Ala Gly Ser Ser
    50                  55                  60
Ala His Ile Thr Ala Ser Gln Val Ser Lys Gly Leu Gly Asp Ala Arg
65                  70                  75                  80
Thr Val Val Ala Leu Gly Asn Ala Phe Asn Gly Ala Leu Pro Gly Thr
                85                  90                  95
Val Gln Ser Ala Gln Ser Phe Phe Ser His Met Lys Ala Ala Ser Gln
            100                 105                 110
Lys Thr Gln Glu Gly Asp Glu Gly Leu Thr Ala Asp Leu Cys Val Ser
        115                 120                 125
His Lys Arg Arg Ala Ala Ala Ala Val Cys Ser Ile Ile Gly Gly Ile
    130                 135                 140
Thr Tyr Leu Ala Thr Phe Gly Ala Ile Arg Pro Ile Leu Phe Val Asn
145                 150                 155                 160
Lys Met Leu Ala Lys Pro Phe Leu Ser Ser Gln Thr Lys Ala Asn Met
                165                 170                 175
Gly Ser Ser Val Ser Tyr Ile Met Ala Ala Asn His Ala Ala Ser Val
            180                 185                 190
Val Gly Ala Gly Leu Ala Ile Ser Ala Xaa Arg Ala Asp Cys Glu Ala
        195                 200                 205
Arg Cys Ala Arg Ile Ala Arg Glu Glu Ser Leu Leu Glu Val Pro Gly

```
    210                 215                 220
Glu Glu Asn Ala Cys Glu Lys Lys Val Ala Gly Glu Lys Ala Lys Thr
225                 230                 235                 240
Phe Thr Arg Ile Lys Tyr Ala Leu Leu Thr Met Leu Glu Lys Phe Leu
                245                 250                 255
Glu Cys Val Ala Asp Val Phe Lys Leu Val Pro Leu Pro Ile Thr Met
            260                 265                 270
Gly Ile Arg Ala Ile Val Ala Ala Gly Cys Thr Phe Thr Ser Ala Ile
        275                 280                 285
Ile Gly Leu Cys Thr Phe Cys Ala Arg Ala
    290                 295
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<210> 265
<211> 897
<212> DNA
<213> Chlamydia

<220>
<221> misc_feature
<222> (1)...(897)
<223> n = A,T,C or G

<400> 265

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atggcttcta tatgcggacg tttagggtct ggtacaggga atgctctaaa agctttttt      60
acacagccca acaataaaat ggcaagggta gtaaataaga cgaagggaat ggataagact     120
attaaggttg ccaagtctgc tgccgaattg accgcaaata ttttggaaca agctggaggc     180
gcgggctctt ccgcacacat tacagcttcc caagtgtcca aaggattagg ggatgcgaga     240
actgttgtcg ctttagggaa tgcctttaac ggagcgttgc caggaacagt tcaaagtgcg     300
caaagcttct tctctcacat gaaagctgct agtcagaaaa cgcaagaagg ggatgagggg     360
ctcacagcag atctttgtgt gtctcataag cgcagagcgg ctgcggctgt ctgtagcatc     420
atcggaggaa ttacctacct cgcgacattc ggagctatcc gtccgattct gtttgtcaac     480
aaaatgctgg caaaaccgtt tctttcttcc caaactaaag caaatatggg atcttctgtt     540
agctatatta tggcggctaa ccatgcagcg tctgtggtgg gtgctggact cgctatcagt     600
gcgnaaagag cagattgcga agcccgctgc gctcgtattg cgagagaaga gtcgttactc     660
gaagtgccgg gagaggaaaa tgcttgcgag aagaaagtcg ctggagagaa agccaagacg     720
ttcacgcgca tcaagtatgc actcctcact atgctcgaga agtttttgga atgcgttgcc     780
gacgttttca aattggtgcc gctgcctatt acaatgggta ttcgtgcgat tgtggctgct     840
ggatgtacgt tcacttctgc aattattgga ttgtgcactt tctgcgccag agcataa        897
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<210> 266
<211> 298
<212> PRT
<213> Chlamydia

<220>
<221> VARIANT
<222> (1)...(298)
<223> Xaa = Any Amino Acid

<400> 266

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Met Ala Ser Ile Cys Gly Arg Leu Gly Ser Gly Thr Gly Asn Ala Leu
 1               5                  10                  15
Lys Ala Phe Phe Thr Gln Pro Asn Asn Lys Met Ala Arg Val Val Asn
            20                  25                  30
Lys Thr Lys Gly Met Asp Lys Thr Ile Lys Val Ala Lys Ser Ala Ala
        35                  40                  45
Glu Leu Thr Ala Asn Ile Leu Glu Gln Ala Gly Gly Ala Gly Ser Ser
```

```
    50                  55                  60
Ala His Ile Thr Ala Ser Gln Val Ser Lys Gly Leu Gly Asp Ala Arg
65                  70                  75                  80
Thr Val Val Ala Leu Gly Asn Ala Phe Asn Gly Ala Leu Pro Gly Thr
                85                  90                  95
Val Gln Ser Ala Gln Ser Phe Phe Ser His Met Lys Ala Ala Ser Gln
            100                 105                 110
Lys Thr Gln Glu Gly Asp Glu Gly Leu Thr Ala Asp Leu Cys Val Ser
        115                 120                 125
His Lys Arg Arg Ala Ala Ala Ala Val Cys Ser Ile Ile Gly Gly Ile
    130                 135                 140
Thr Tyr Leu Ala Thr Phe Gly Ala Ile Arg Pro Ile Leu Phe Val Asn
145                 150                 155                 160
Lys Met Leu Ala Lys Pro Phe Leu Ser Ser Gln Thr Lys Ala Asn Met
                165                 170                 175
Gly Ser Ser Val Ser Tyr Ile Met Ala Ala Asn His Ala Ala Ser Val
            180                 185                 190
Val Gly Ala Gly Leu Ala Ile Ser Ala Xaa Arg Ala Asp Cys Glu Ala
        195                 200                 205
Arg Cys Ala Arg Ile Ala Arg Glu Glu Ser Leu Leu Glu Val Pro Gly
    210                 215                 220
Glu Glu Asn Ala Cys Glu Lys Lys Val Ala Gly Glu Lys Ala Lys Thr
225                 230                 235                 240
Phe Thr Arg Ile Lys Tyr Ala Leu Leu Thr Met Leu Glu Lys Phe Leu
                245                 250                 255
Glu Cys Val Ala Asp Val Phe Lys Leu Val Pro Leu Pro Ile Thr Met
            260                 265                 270
Gly Ile Arg Ala Ile Val Ala Ala Gly Cys Thr Phe Thr Ser Ala Ile
        275                 280                 285
Ile Gly Leu Cys Thr Phe Cys Ala Arg Ala
    290                 295
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<210> 267
<211> 680
<212> DNA
<213> Chlamydia

<400> 267

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gagctttagg atattcaaca gatgcagata ttattgaaga gttcttttct gtagaggagc     120
gttccttacg ttcagagaag gattttgtcg cgttagttgg taaagtttta gctgataacg     180
tagttgatgc ggattcttca ttagtttacg ggaaagctgg agagaagcta agtactgcta     240
tgctaaaacg catcttagat acgggagtcc aatctttgaa gattgctgtt ggcgcagatg     300
aaaatcaccc aattattaag atgctcgcaa aagatcctac ggattcttac gaagctgctc     360
ttaaagattt ttatcgcaga ttacgaccag gagagcctgc aactttagct aatgctcgat     420
ccacaattat gcgtttattc ttcgatgcta aacgttataa tttaggccgc gttggacgtt     480
ataaattaaa taaaaaatta ggcttcccat tagacgacga aacattatct caagtgactt     540
tgagaaaaga agatgttatc ggcgcgttga aatatttgat tcgtttgcga atgggcgatg     600
agaagacatc tatcgatgat attgaccatt tggcaaaccg acgagttcgc tctgttggag     660
aactaattca gaatcactgt                                                 680
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<210> 268
<211> 359
<212> DNA
<213> Chlamydia

<400> 268

cttatgttct ggagaatgtt gcaacaacat attaatcgaa ccagctcctc ctagtaacat 60
agaaaccaag ccctttgag aaaaaacctg tacttcgcat cctttagcca tttgttgaat 120
agctcctaac aaagagctaa ttttttcctc ttccttgttt ttctgaggcg ctgtggactc 180
taaatatagc aagtgctctt ggaacacctc atcaacaatc gcttgtccta gattaggtat 240
agagactgtc tctccatcaa ttaaatggag tttcaaagta atatcccctt ccgtccctcc 300
atcacaagac tctatgaaag ctatctgatt ccatcgagca gaaatgtatg gggaaatac 359

<210> 269
<211> 124
<212> DNA
<213> Chlamydia

<400> 269
gatcgaatca attgagggag ctcattaaca agaatagctg cagtttcttt gcgttcttct 60
ggaataacaa gaaataggta atcggtacca ttgatagaac gaacacgaca aatcgcagaa 120
ggtt 124

<210> 270
<211> 219
<212> DNA
<213> Chlamydia

<400> 270
gatcctgttg ggcctagtaa taatacgttg gatttcccat aactcacttg tttatcctgc 60
ataagagcac ggatacgctt atagtggtta tagacggcaa ccgaaatcgt ttttttcgcg 120
cgctcttgtc caatgacata agagtcgatg tggcgtttga tttctttagg ggttaacact 180
ctcagacttg ttggagagct tgtggaagat gttgcgatc 219

<210> 271
<211> 511
<212> DNA
<213> Chlamydia

<220>
<221> misc_feature
<222> (1)...(511)
<223> n = A,T,C or G

<400> 271
ggatccgaat tcggcacgag gagaaaatat aggaggttcc akcatcggaa gatctaatag 60
acaaagaggt tttggcatag atggctcctc cttgtacgtt caacgatgat tgggagggat 120
tgttatcgat agcttggttc ccagagaact gacaagtccc gctacattga gagaatgtaa 180
cctgttctcc atagatagct cctcctacta cacctgaata agttggtgtt gctggagatg 240
atggtgcggc tgctgcggct gcttgtaggg aagcagcagc tgcagcaggt gctgaagctg 300
ttgttgcgac tcctgtggat gaggagtttg ctttgttgtt cgagaaagag aagcctgatt 360
tcagattaga aatatttaca gttttagcat gtaagcctcc accttctttc ccaacaaggt 420
tctctgttac agataaggag actagangca tctagtttta aagatttttt acagcagata 480
cctccaccta tctctgtagc ggagttctca g 511

<210> 272
<211> 598
<212> DNA
<213> Chlamydia

<400> 272
ctcttcctct cctcaatcta gttctggagc aactacagtc tccgactcag gagactctag 60
ctctggctca aactcggata cctcaaaaac agttccagtc acagctaaag gcggtgggct 120

ttatactgat aagaatcttt cgattactaa catcacagga attatcgaaa ttgcaaataa 180
caaagcgaca gatgttggag gtggtgctta cgtaaaagga acccttactt gtaaaaactc 240
tcaccgtcta caatttttga aaaactcttc cgataaacaa ggtggaggaa tctacggaga 300
agacaacatc accctatcta atttgacagg gaagactcta ttccaagaga atactgccaa 360
aaaagagggc ggtggactct tcataaaagg tacagataaa gctcttacaa tgacaggact 420
ggatagtttc tgtttaatta ataacacatc agaaaaacat ggtggtggga gcctttgtta 480
ccaaagaaat ctctcagact tacacctctt gatgtggaaa caattccagg aatcacgcct 540
gtacatggtg aaacagtcat tactggcaat aaatctacag gaggtaatgg tggagggc 598

<210> 273
<211> 126
<212> DNA
<213> Chlamydia

<400> 273
ggatccgaat tcggcacgag atgagcctta tagtttaaca aaagcttctc acattccttc 60
gatagctttt tattagccgt ttttagcatc ctaatgagat ctcctcgttc gtaacaaata 120
cgagag 126

<210> 274
<211> 264
<212> DNA
<213> Chlamydia

<400> 274
ggatccgaat tcggcacgag ctcttttaaa tcttaattac aaaaagacaa attaattcaa 60
tttttcaaaa aagaatttaa acattaattg ttgtaaaaaa acaatattta ttctaaaata 120
ataaccatag ttacggggga atctctttca tggtttattt tagagctcat caacctaggc 180
atacgcctaa aacatttcct ttgaaagttc accattcgtt ctccgataag catcctcaaa 240
ttgctaaagc tatgtggatt acgg 264

<210> 275
<211> 359
<212> DNA
<213> Chlamydia

<400> 275
ggatccgaat tcggcacgag ataaaacctg aaccacaaca aagatctaaa acttcttgat 60
tttcagctgc aaattctttt agataaatat caaccatttc ttcagtttca tatcttggaa 120
ttaaaacttg ttctcttaaa ttaattctag tatttaagta ttcaacatag cccattatta 180
attgaattgg ataattttgc cttaataatt cacattcttt ttcagtaatt ttaggttcta 240
aaccgtaccg ctttttttct aaaattaatg tttcttcatt attcatttta taagccactt 300
tcctttattt tttgattttg ttcttctgtt agtaatgctt caataatagt taataattt 359

<210> 276
<211> 357
<212> DNA
<213> Chlamydia

<400> 276
aaaacaattg atataatttt ttttttcata acttccagac tcctttctag aaaagtcttt 60
atgggtagta gtgactctaa cgtttttttat tattaagacg atccccggag atccttttaa 120
tgatgaaaac ggaaacatcc tttcgccaga aactttagca ctattaaaga atcgttacgg 180
gttagataag cctttattca cccagtatct tatctatttg aaatgtctgc taacactaga 240
tttcggggaa tctcttatct acaaagatcg aaatctcagc attattgctg ccgctcttcc 300
atcttccgct attcttggac ttgaaagctt gtgtttactc gtgccgaatt cggatcc 357

<210> 277
<211> 505
<212> DNA
<213> Chlamydia

<400> 277
ggatccgaat tcggcacgag ctcgtgccga ttgcttgctt cagtcacccc atcggtatag 60
agcactaaaa gagactcctc ttcaagaacg agagtgtaag cagggtgagg aggaacttca 120
ggtaaaaatc ctaaggccat accaggatgc gacaggaaag agatatctcc attaggagct 180
cggagacacg ctgggttgtg gccacaagaa tagtattcta gttctcgtgt tgcgtaatga 240
taacaataaa tgcatagtgt tacaaacatc ccagattcag ctgtctgttg atagaagaga 300
gcagctgttt gttgaacggc ttcttgaata gaggagagct cactcaaaaa ggtatgtaac 360
atgtttttca ggaataagga gtaggcgcac gcattgactc ctttcccgga agcatcagca 420
acgattagaa agagtttagc ttggggacct tcgcctataa caaagatatc aaagaaatct 480
cctcctaccg taactgcagg aatat 505

<210> 278
<211> 407
<212> DNA
<213> Chlamydia

<400> 278
ggatccgaat tcggcacgag aactactgag caaattgggt atccaacttc ctctttacga 60
aagaaaaaca gaaggcattc tccataccaa gatttgttgc atcgacaata aaactccaat 120
ctttggctct gctaactgga gcggtgctgg tatgattaaa aactttgaag acctattcat 180
ccttcgccca attacagaga cacagcttca ggcctttatg gacgtctggt ctcttctaga 240
aacaaatagc tcctatctgt ccccagagag cgtgcttacg gcccctactc cttcaagtag 300
acctactcaa caagatacag attctgatga cgaacaaccg agtaccagcc agcaagctat 360
ccgtatgaga aaataggatt agggaaacaa aacgacagca aaccaca 407

<210> 279
<211> 351
<212> DNA
<213> Chlamydia

<400> 279
ctcgtgccgc ttacaggagg cttgtatcct ttaaaataga gtttttctta tgaccccatg 60
tggcgatagg ccgggtctag cgccgatagt agaaatatcg gttggttttt gtccttgagg 120
ggatcgtata ctttttcaaa gtatggtccc cgtatcgatt atctggaggc tcttatgtct 180
ttttttcata ctagaaaata taagcttatc ctcagaggac tcttgtgttt agcaggctgt 240
ttcttaatga acagctgttc ctctagtcga ggaaatcaac ccgctgatga gagcatctat 300
gtcttgtcta tgaatcgcat gatttgtgat tctcgtgccg aattcggatc c 351

<210> 280
<211> 522
<212> DNA
<213> Chlamydia

<400> 280
ggatccgaat tcggcacgag cagaggaaaa aggcgatact cctcttgaag atcgtttcac 60
agaagatctt tccgaagtct ctggagaaga ttttcgagga ttgaaaaatt cgttcgatga 120
tgattcttct tctgacgaaa ttctcgatgc gctcacaagt aaatttttctg atcccacaat 180
aaaggatcta gctcttgatt atctaattca aatagctccc tctgatggga aacttaagtc 240
cgctctcatt caggcaaagc atcaactgat gagccagaat cctcaggcga ttgttggagg 300
acgcaatgtt ctgttagctt cagaaacctt tgcttccaga gcaaatacat ctccttcatc 360
gcttcgctcc ttatatttcc aagtaacctc atccccctct aattgcgcta atttacatca 420
aatgcttgct tcttactcgc catcagagaa aaccgctgtt atggagtttc tagtgaatgg 480

catggtagca gatttaaaat cggagggccc ttccattcct cc 522

<210> 281
<211> 577
<212> DNA
<213> Chlamydia

<400> 281
ggatccgaat tcggcacgag atgcttctat tacaattggt ttggatgcgg aaaaagctta 60
ccagcttatt ctagaaaagt tgggagatca aattcttggt ggaattgctg atactattgt 120
tgatagtaca gtccaagata ttttagacaa aatcacaaca gacccttctc taggtttgtt 180
gaaagctttt aacaactttc caatcactaa taaaattcaa tgcaacgggt tattcactcc 240
caggaacatt gaaactttat taggaggaac tgaaatagga aaattcacag tcacacccaa 300
aagctctggg agcatgttct tagtctcagc agatattatt gcatcaagaa tggaaggcgg 360
cgttgttcta gctttggtac gagaaggtga ttctaagccc tacgcgatta gttatggata 420
ctcatcaggc gttcctaatt tatgtagtct aagaaccaga attattaata caggattgac 480
tccgacaacg tattcattac gtgtaggcgg tttagaaagc ggtgtggtat gggttaatgc 540
cctttctaat ggcaatgata ttttaggaat aacaaat 577

<210> 282
<211> 607
<212> DNA
<213> Chlamydia

<400> 282
actmatcttc cccgggctcg agtgcggccg caagcttgtc gacggagctc gatacaaaaa 60
tgtgtgcgtg tgaaccgctt cttcaaaagc ttgtcttaaa agatattgtc tcgcttccgg 120
attagttaca tgtttaaaaa ttgctagaac aatattattc ccaaccaagc tctctgcggt 180
gctgaaaaaa cctaaattca aaagaatgac tcgccgctca tcttcagaaa gacgatccga 240
cttccataat tcgatgtctt tccccatggg gatctctgta gggagccagt tatttgcgca 300
gccattcaaa taatgttccc aagcccattt gtacttaata ggaacaagtt ggttgacatc 360
gacctggttg cagttcacta gacgcttgct atttagatta acgcgtttct gttttccatc 420
taaaatatct gcttgcataa gaaccgttaa ttttattgtt aatttatatg attaattact 480
gacatgcttc acacccttct tccaaagaac agacaggtgc tttcttcgct ctttcaacaa 540
taattcctgc cgaagcagac ttattcttca tccaacgagg ctgaattcct ctcttattaa 600
tatctac 607

<210> 283
<211> 1077
<212> DNA
<213> Chlamydia

<400> 283
ggatccgaat tcggcacgag aagttaacga tgacgatttg ttcctttggt agagaaggag 60
caatcgaaac taaatgtgcg agagcatgtg aagactccaa tgcaggaata atcccctcat 120
ttctagtaag caggaaaaaa gctcgtaacg cctcttcatc ggtggctaat gtataaaagg 180
ctcgtcctga ctcatgcatt tcggcatgat ctggcccaac tgaaggataa tctaatccag 240
cggaaatgga gtgagtttgt aatacttgtc catcgtcatc ttgaagaaga tacgaataaa 300
atccgtggaa tactccaggt cgccctgttg caaaacgtgc tgcatgtttt cctgaagaaa 360
tgcccagtcc tccccccttcc actccaatta attggacttt tggattcggg ataaaatgat 420
ggaaaaatcc aatagcgttg gagccacctc cgatacatgc aatcagaata tcaggatctc 480
ttcctgcaac tgcatggatt tgctctttca cttcagcgct tataacagac tgaaaaaatc 540
gaacgatatc gggataaggt aaaggtccta aggccgatcc taagcaatag tgagtaaatg 600
agtgtgttgt tgcccaatct tgtagagctt gattaactgc atctttgagt ccacaagatc 660
cttttgttac agaaacgact tcagcaccta aaaagcgcat tttctctaca tttggtttct 720
gtcgttccac atcttttgct cccatgtata ctacacaatc taatcctaga taagcacacg 780
ctgttgctgt tgctactcca tgttgtcccg cacctgtttc agctacaaca cgtgttttcc 840

caagatattt agcaagcaaa cactgaccaa gagcattatt cagtttatgt gctcctgtat 900
gcaaaagatc ttcgcgttta agaaatactc tagggccatc aatagctcga gcaaaattct 960
taacttcagt cagaggagtt tgtctccccg catagttttt caaaatacaa tctagttcag 1020
ataaaaaact ttgctgagtt ttgagaatct cccattccgc ttttagattc tgtatag 1077

<210> 284
<211> 407
<212> DNA
<213> Chlamydia

<400> 284
ggatccgaat tcggcacgag aactactgag caaattgggt atccaacttc ctctttacga 60
aagaaaaaca gaaggcattc tccataccaa gatttgttgc atcgacaata aaactccaat 120
ctttggctct gctaactgga gcggtgctgg tatgattaaa aactttgaag acctattcat 180
ccttcgccca attacagaga cacagcttca ggcctttatg gacgtctggt ctcttctaga 240
aacaaatagc tcctatctgt ccccagagag cgtgcttacg gcccctactc cttcaagtag 300
acctactcaa caagatacag attctgatga cgaacaaccg agtaccagcc agcaagctat 360
ccgtatgaga aaataggatt agggaaacaa aacgacagca aaccaca 407

<210> 285
<211> 802
<212> DNA
<213> Chlamydia

<400> 285
ggatccgaat tcggcacgag ttagcttaat gtctttgtca tctctaccta catttgcagc 60
taattctaca ggcacaattg gaatcgttaa tttacgtcgc tgcctagaag agtctgctct 120
tgggaaaaaa gaatctgctg aattcgaaaa gatgaaaaac caattctcta acagcatggg 180
gaagatggag gaagaactgt cttctatcta ttccaagctc caagacgacg attacatgga 240
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gcaaaagatt atggaagaag tgaaaaaagc ttctgaaact gtgcgtattc aagaaggctt 420
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tgctgttatt aaagttcttg atgattcttt tcaaaataat taacatgcga agctagccga 540
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cgagtttcaa ggaaatggag ctactcttct ttccggagtt gaagagatcg aggaagcaaa 660
aacggcacac atcacattct tagataatga aaaatatgct aaacatttaa aatcatcgga 720
agctggcgct atcatcatat ctcgaacaca gtttcaaaaa tatcgagact tgaataaaaa 780
ctttcttatc acttctgagt ct 802

<210> 286
<211> 588
<212> DNA
<213> Chlamydia

<400> 286
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aaggtcttct aataaggaag ttaatgtaag aggctttttt attgctttc gtaaggtagt 120
attgcaaccg cacgcgattg aatgatacgc aagccatttc catcatggaa aagaaccctt 180
ggacaaaaat acaaaggagg ttcactccta accagaaaaa gggagagtta gtttccatgg 240
gttttcctta tatacacccg tttcacacaa ttaggagccg cgtctagtat ttggaataca 300
aattgtcccc aagcgaattt tgttcctgtt tcagggattt ctcctaattg ttctgtcagc 360
catccgccta tggtaacgca attagctgta gtaggaagat caactccaaa caggtcatag 420
aaatcagaaa gctcataggt gcctgcagca ataacaacat tcttgtctga gtgagcgaat 480
tgtttaaaag atgggcgatt atgagctacc tcatcagaga ctattttaaa tagatcattt 540
tgggtaatca atccttctat agacccatat tcatcaatga taatctcg 588

<210> 287
<211> 489
<212> DNA
<213> Chlamydia

<220>
<221> misc_feature
<222> (1)...(489)
<223> n = A,T,C or G

<400> 287
agtgcctatt gttttgcagg ctttgtctga tgatagcgat accgtacgtg agattgctgt 60
acaagtagct gttatgtatg gttctagttg cttactgcgc gccgtgggcg atttagcgaa 120
aaatgattct tctattcaag tacgcatcac tgcttatcgt gctgcagccg tgttggagat 180
acaagatctt gtgcctcatt tacgagttgt agtccaaaat acacaattag atggaacgga 240
aagaagagaa gcttggagat ctttatgtgt tcttactcgg cctcatagtg gtgtattaac 300
tggcatagat caagctttaa tgacctgtga gatgttaaag gaatatcctg aaaagtgtac 360
ggaagaacag attcgtacat tattggctgc agatcatcca gaagtgcagg tagctacttt 420
acagatcatt ctgagaggag gtagagtatt ccggtcatct tctataatgg aatcggttct 480
cgtgccgnt 489

<210> 288
<211> 191
<212> DNA
<213> Chlamydia

<400> 288
ggatccgaat tcaggatatg ctgttgggtt atcaataaaa agggttttgc catttttaa 60
gacgactttg tagataacgc taggagctgt agcaataata tcgagatcaa attctctaga 120
gattctctca aagatgattt ctaagtgcag cagtcctaaa aatccacagc ggaacccaaa 180
tccgagagag t 191

<210> 289
<211> 515
<212> DNA
<213> Chlamydia

<400> 289
ggatccgaat tcggcacgag gagcgacgtg aaatagtgga atcttcccgt attcttatta 60
cttctgcgtt gccttacgca aatggtcctt tgcattttgg acatattacc ggtgcttatt 120
tgcctgcaga tgtttatgcg cgttttcaga gactacaagg caaagaggtt ttgtatattt 180
gtggttctga tgaatacgga atcgcaatta cccttaatgc agagttggca ggcatggggt 240
atcaagaata tgtcgacatg tatcataagc ttcataaaga taccttcaag aaattgggaa 300
tttctgtaga tttcttttcc agaactacga acgcttatca tcctgctatt gtgcaagatt 360
tctatcgaaa cttgcaggaa cgcggactgg tagagaatca ggtgaccgaa cagctgtatt 420
ctgaggaaga agggaagttt ttagcggacc gttatgttgt aggtacttgt cccaagtgtg 480
ggtttgatcg agctcgagga gatgagtgtc agcag 515

<210> 290
<211> 522
<212> DNA
<213> Chlamydia

<400> 290
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tgccattcac tagaaactcc ataacagcgg ttttctctga tggcgagtaa gaagcaagca 120
tttgatgtaa attagcgcaa ttagaggggg atgaggttac ttggaaatat aaggagcgaa 180

gcgatgaagg agatgtattt gctctggaag caaaggtttc tgaagctaac agaacattgc 240
gtcctccaac aatcgcctga ggattctggc tcatcagttg atgctttgcc tgaatgagag 300
cggacttaag tttcccatca gagggagcta tttgaattag ataatcaaga gctagatcct 360
ttattgtggg atcagaaaat ttacttgtga gcgcatcgag aatttcgtca gaagaagaat 420
catcatcgaa cgaatttttc aatcctcgaa aatcttctcc agagacttcg gaaagatctt 480
ctgtgaaacg atcttcaaga ggagtatcgc ctttttccyc tg 522

<210> 291
<211> 1002
<212> DNA
<213> Chlamydia

<400> 291
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gccaaagaac cagcggctgt cagctccttt gctcagaaag ggatttattg tattcaacaa 120
ttttttacaa accctgggaa taagttagca aagtttgtag gggcaacaaa aagtttagat 180
aaatgcttta agctaagtaa ggcggtttct gactgtgtcg taggatcgct ggaagaggcg 240
ggatgcacag gggacgcatt gacctccgcg agaaacgccc agggtatgtt aaaaacaact 300
cgagaagttg ttgccttagc taatgtgctc aatggagctg ttccatctat cgttaactcg 360
actcagaggt gttaccaata cacacgtcaa gccttcgagt taggaagcaa gacaaaagaa 420
agaaaaacgc ctggggagta tagtaaaatg ctattaactc gaggtgatta cctattggca 480
gcttccaggg aagcttgtac ggcagtcggt gcaacgactt actcagcgac attcggtgtt 540
ttacgtccgt taatgttaat caataaactc acagcaaaac cattcttaga caaagcgact 600
gtaggcaatt ttggcacggc tgttgctgga attatgacca ttaatcatat ggcaggagtt 660
gctggtgctg ttggcggaat cgcattagaa caaaagctgt tcaaacgtgc gaaggaatcc 720
ctatacaatg agagatgtgc cttagaaaac caacaatctc agttgagtgg ggacgtgatt 780
ctaagcgcgg aaagggcatt acgtaaagaa cacgttgcta ctctaaaaag aaatgtttta 840
actcttcttg aaaaagcttt agagttggta gtggatggag tcaaactcat tcctttaccg 900
attacagtgg cttgctccgc tgcaatttct ggagccttga cggcagcatc cgcaggaatt 960
ggcttatata gcatatggca gaaaacaaag tctggcaaat aa 1002

<210> 292
<211> 333
<212> PRT
<213> Chlamydia

<400> 292
Met Ala Thr Asn Ala Ile Arg Ser Ala Gly Ser Ala Ala Ser Lys Met
 1               5                  10                  15
Leu Leu Pro Val Ala Lys Glu Pro Ala Ala Val Ser Ser Phe Ala Gln
            20                  25                  30
Lys Gly Ile Tyr Cys Ile Gln Gln Phe Phe Thr Asn Pro Gly Asn Lys
        35                  40                  45
Leu Ala Lys Phe Val Gly Ala Thr Lys Ser Leu Asp Lys Cys Phe Lys
    50                  55                  60
Leu Ser Lys Ala Val Ser Asp Cys Val Val Gly Ser Leu Glu Glu Ala
65                  70                  75                  80
Gly Cys Thr Gly Asp Ala Leu Thr Ser Ala Arg Asn Ala Gln Gly Met
                85                  90                  95
Leu Lys Thr Thr Arg Glu Val Val Ala Leu Ala Asn Val Leu Asn Gly
            100                 105                 110
Ala Val Pro Ser Ile Val Asn Ser Thr Gln Arg Cys Tyr Gln Tyr Thr
        115                 120                 125
Arg Gln Ala Phe Glu Leu Gly Ser Lys Thr Lys Glu Arg Lys Thr Pro
    130                 135                 140
Gly Glu Tyr Ser Lys Met Leu Leu Thr Arg Gly Asp Tyr Leu Leu Ala
145                 150                 155                 160

```
Ala Ser Arg Glu Ala Cys Thr Ala Val Gly Ala Thr Thr Tyr Ser Ala
                165                 170                 175
Thr Phe Gly Val Leu Arg Pro Leu Met Leu Ile Asn Lys Leu Thr Ala
            180                 185                 190
Lys Pro Phe Leu Asp Lys Ala Thr Val Gly Asn Phe Gly Thr Ala Val
        195                 200                 205
Ala Gly Ile Met Thr Ile Asn His Met Ala Gly Val Ala Gly Ala Val
    210                 215                 220
Gly Gly Ile Ala Leu Glu Gln Lys Leu Phe Lys Arg Ala Lys Glu Ser
225                 230                 235                 240
Leu Tyr Asn Glu Arg Cys Ala Leu Glu Asn Gln Gln Ser Gln Leu Ser
                245                 250                 255
Gly Asp Val Ile Leu Ser Ala Glu Arg Ala Leu Arg Lys Glu His Val
            260                 265                 270
Ala Thr Leu Lys Arg Asn Val Leu Thr Leu Leu Glu Lys Ala Leu Glu
        275                 280                 285
Leu Val Val Asp Gly Val Lys Leu Ile Pro Leu Pro Ile Thr Val Ala
    290                 295                 300
Cys Ser Ala Ala Ile Ser Gly Ala Leu Thr Ala Ala Ser Ala Gly Ile
305                 310                 315                 320
Gly Leu Tyr Ser Ile Trp Gln Lys Thr Lys Ser Gly Lys
                325                 330
```

<210> 293
<211> 7
<212> DNA
<213> Chlamydia

<400> 293
tgcaatc 7

<210> 294
<211> 196
<212> PRT
<213> Chlamydia

<400> 294

```
Thr Met Gly Ser Leu Val Gly Arg Gln Ala Pro Asp Phe Ser Gly Lys
  5                  10                  15

Ala Val Val Cys Gly Glu Glu Lys Glu Ile Ser Leu Ala Asp Phe Arg
            20                  25                  30

Gly Lys Tyr Val Val Leu Phe Phe Tyr Pro Lys Asp Phe Thr Tyr Val
        35                  40                  45

Cys Pro Thr Glu Leu His Ala Phe Gln Asp Arg Leu Val Asp Phe Glu
    50                  55                  60

Glu His Gly Ala Val Val Leu Gly Cys Ser Val Asp Asp Ile Glu Thr
65                  70                  75                  80

His Ser Arg Trp Leu Thr Val Ala Arg Asp Ala Gly Gly Ile Glu Gly
                85                  90                  95

Thr Glu Tyr Pro Leu Leu Ala Asp Pro Ser Phe Lys Ile Ser Glu Ala
            100                 105                 110
```

```
Phe Gly Val Leu Asn Pro Glu Gly Ser Leu Ala Leu Arg Ala Thr Phe
        115                 120                 125

Leu Ile Asp Lys His Gly Val Ile Arg His Ala Val Ile Asn Asp Leu
    130                 135                 140

Pro Leu Gly Arg Ser Ile Asp Glu Glu Leu Arg Ile Leu Asp Ser Leu
145                 150                 155                 160

Ile Phe Phe Glu Asn His Gly Met Val Cys Pro Ala Asn Trp Arg Ser
                165                 170                 175

Gly Glu Arg Gly Met Val Pro Ser Glu Glu Gly Leu Lys Glu Tyr Phe
            180                 185                 190

Gln Thr Met Asp
        195
```

<210> 295
<211> 181
<212> PRT
<213> Chlamydia

<400> 295

```
Lys Gly Gly Lys Met Ser Thr Thr Ile Ser Gly Asp Ala Ser Ser Leu
                  5                  10                  15

Pro Leu Pro Thr Ala Ser Cys Val Glu Thr Lys Ser Thr Ser Ser Ser
             20                  25                  30

Thr Lys Gly Asn Thr Cys Ser Lys Ile Leu Asp Ile Ala Leu Ala Ile
         35                  40                  45

Val Gly Ala Leu Val Val Val Ala Gly Val Leu Ala Leu Val Leu Cys
     50                  55                  60

Ala Ser Asn Val Ile Phe Thr Val Ile Gly Ile Pro Ala Leu Ile Ile
 65                  70                  75                  80

Gly Ser Ala Cys Val Gly Ala Gly Ile Ser Arg Leu Met Tyr Arg Ser
                 85                  90                  95

Ser Tyr Ala Ser Leu Glu Ala Lys Asn Val Leu Ala Glu Gln Arg Leu
            100                 105                 110

Arg Asn Leu Ser Glu Glu Lys Asp Ala Leu Ala Ser Val Ser Phe Ile
        115                 120                 125

Asn Lys Met Phe Leu Arg Gly Leu Thr Asp Asp Leu Gln Ala Leu Glu
    130                 135                 140

Ala Lys Val Met Glu Phe Glu Ile Asp Cys Leu Asp Arg Leu Glu Lys
145                 150                 155                 160

Asn Glu Gln Ala Leu Leu Ser Asp Val Arg Leu Val Leu Ser Ser Tyr
```

165 170 175

Thr Arg Trp Leu Asp
180

<210> 296
<211> 124
<212> PRT
<213> Chlamydia

<400> 296
Ile Tyr Glu Val Met Asn Met Asp Leu Glu Thr Arg Arg Ser Phe Ala
5 10 15

Val Gln Gln Gly His Tyr Gln Asp Pro Arg Ala Ser Asp Tyr Asp Leu
20 25 30

Pro Arg Ala Ser Asp Tyr Asp Leu Pro Arg Ser Pro Tyr Pro Thr Pro
35 40 45

Pro Leu Pro Ser Arg Tyr Gln Leu Gln Asn Met Asp Val Glu Ala Gly
50 55 60

Phe Arg Glu Ala Val Tyr Ala Ser Phe Val Ala Gly Met Tyr Asn Tyr
65 70 75 80

Val Val Thr Gln Pro Gln Glu Arg Ile Pro Asn Ser Gln Gln Val Glu
85 90 95

Gly Ile Leu Arg Asp Met Leu Thr Asn Gly Ser Gln Thr Phe Ser Asn
100 105 110

Leu Met Gln Arg Trp Asp Arg Glu Val Asp Arg Glu
115 120

<210> 297
<211> 488
<212> PRT
<213> Chlamydia

<400> 297
Lys Gly Ser Leu Pro Ile Leu Gly Pro Phe Leu Asn Gly Lys Met Gly
5 10 15

Phe Trp Arg Thr Ser Ile Met Lys Met Asn Arg Ile Trp Leu Leu Leu
20 25 30

Leu Thr Phe Ser Ser Ala Ile His Ser Pro Val Arg Gly Glu Ser Leu
35 40 45

Val Cys Lys Asn Ala Leu Gln Asp Leu Ser Phe Leu Glu His Leu Leu
50 55 60

Gln Val Lys Tyr Ala Pro Lys Thr Trp Lys Glu Gln Tyr Leu Gly Trp
65 70 75 80

```
Asp Leu Val Gln Ser Ser Val Ser Ala Gln Gln Lys Leu Arg Thr Gln
                 85                  90                  95

Glu Asn Pro Ser Thr Ser Phe Cys Gln Gln Val Leu Ala Asp Phe Ile
            100                 105                 110

Gly Gly Leu Asn Asp Phe His Ala Gly Val Thr Phe Phe Ala Ile Glu
        115                 120                 125

Ser Ala Tyr Leu Pro Tyr Thr Val Gln Lys Ser Ser Asp Gly Arg Phe
    130                 135                 140

Tyr Phe Val Asp Ile Met Thr Phe Ser Ser Glu Ile Arg Val Gly Asp
145                 150                 155                 160

Glu Leu Leu Glu Val Asp Gly Ala Pro Val Gln Asp Val Leu Ala Thr
                165                 170                 175

Leu Tyr Gly Ser Asn His Lys Gly Thr Ala Ala Glu Glu Ser Ala Ala
            180                 185                 190

Leu Arg Thr Leu Phe Ser Arg Met Ala Ser Leu Gly His Lys Val Pro
        195                 200                 205

Ser Gly Arg Thr Thr Leu Lys Ile Arg Arg Pro Phe Gly Thr Thr Arg
    210                 215                 220

Glu Val Arg Val Lys Trp Arg Tyr Val Pro Glu Gly Val Gly Asp Leu
225                 230                 235                 240

Ala Thr Ile Ala Pro Ser Ile Arg Ala Pro Gln Leu Gln Lys Ser Met
                245                 250                 255

Arg Ser Phe Phe Pro Lys Lys Asp Asp Ala Phe His Arg Ser Ser Ser
            260                 265                 270

Leu Phe Tyr Ser Pro Met Val Pro His Phe Trp Ala Glu Leu Arg Asn
        275                 280                 285

His Tyr Ala Thr Ser Gly Leu Lys Ser Gly Tyr Asn Ile Gly Ser Thr
    290                 295                 300

Asp Gly Phe Leu Pro Val Ile Gly Pro Val Ile Trp Glu Ser Glu Gly
305                 310                 315                 320

Leu Phe Arg Ala Tyr Ile Ser Ser Val Thr Asp Gly Asp Gly Lys Ser
                325                 330                 335

His Lys Val Gly Phe Leu Arg Ile Pro Thr Tyr Ser Trp Gln Asp Met
            340                 345                 350

Glu Asp Phe Asp Pro Ser Gly Pro Pro Pro Trp Glu Glu Phe Ala Lys
        355                 360                 365

Ile Ile Gln Val Phe Ser Ser Asn Thr Glu Ala Leu Ile Ile Asp Gln
    370                 375                 380
```

```
Thr Asn Asn Pro Gly Gly Ser Val Leu Tyr Leu Tyr Ala Leu Leu Ser
385                 390                 395                 400

Met Leu Thr Asp Arg Pro Leu Glu Leu Pro Lys His Arg Met Ile Leu
                405                 410                 415

Thr Gln Asp Glu Val Val Asp Ala Leu Asp Trp Leu Thr Leu Leu Glu
            420                 425                 430

Asn Val Asp Thr Asn Val Glu Ser Arg Leu Ala Leu Gly Asp Asn Met
        435                 440                 445

Glu Gly Tyr Thr Val Asp Leu Gln Val Ala Glu Tyr Leu Lys Ser Phe
    450                 455                 460

Gly Arg Gln Val Leu Asn Cys Trp Ser Lys Gly Asp Ile Glu Leu Ser
465                 470                 475                 480

Thr Pro Ile Pro Leu Phe Gly Phe
                485
```

<210> 298
<211> 140
<212> PRT
<213> Chlamydia

<400> 298

```
Arg Ile Asp Ile Ser Ser Val Thr Phe Phe Ile Gly Ile Leu Leu Ala
                  5                  10                  15

Val Asn Ala Leu Thr Tyr Ser His Val Leu Arg Asp Leu Ser Val Ser
            20                  25                  30

Met Asp Ala Leu Phe Ser Arg Asn Thr Leu Ala Val Leu Leu Gly Leu
        35                  40                  45

Val Ser Ser Val Leu Asp Asn Val Pro Leu Val Ala Ala Thr Ile Gly
    50                  55                  60

Met Tyr Asp Leu Pro Met Asn Asp Pro Leu Trp Lys Leu Ile Ala Tyr
65                  70                  75                  80

Thr Ala Gly Thr Gly Gly Ser Ile Leu Ile Ile Gly Ser Ala Ala Gly
                85                  90                  95

Val Ala Tyr Met Gly Met Glu Lys Val Ser Phe Gly Trp Tyr Val Lys
            100                 105                 110

His Ala Ser Trp Ile Ala Leu Ala Ser Tyr Phe Gly Gly Leu Ala Val
        115                 120                 125

Tyr Phe Leu Met Glu Asn Cys Val Asn Leu Phe Val
    130                 135                 140
```

<210> 299
<211> 361
<212> PRT
<213> Chlamydia

<400> 299

```
His Gln Glu Ile Ala Asp Ser Pro Leu Val Lys Lys Ala Glu Glu Gln
                  5                  10                  15

Ile Asn Gln Ala Gln Gln Asp Ile Gln Thr Ile Thr Pro Ser Gly Leu
             20                  25                  30

Asp Ile Pro Ile Val Gly Pro Ser Gly Ser Ala Ala Ser Ala Gly Ser
         35                  40                  45

Ala Ala Gly Ala Leu Lys Ser Ser Asn Asn Ser Gly Arg Ile Ser Leu
     50                  55                  60

Leu Leu Asp Asp Val Asp Asn Glu Met Ala Ala Ile Ala Met Gln Gly
 65                  70                  75                  80

Phe Arg Ser Met Ile Glu Gln Phe Asn Val Asn Asn Pro Ala Thr Ala
                 85                  90                  95

Lys Glu Leu Gln Ala Met Glu Ala Gln Leu Thr Ala Met Ser Asp Gln
            100                 105                 110

Leu Val Gly Ala Asp Gly Glu Leu Pro Ala Glu Ile Gln Ala Ile Lys
        115                 120                 125

Asp Ala Leu Ala Gln Ala Leu Lys Gln Pro Ser Ala Asp Gly Leu Ala
    130                 135                 140

Thr Ala Met Gly Gln Val Ala Phe Ala Ala Ala Lys Val Gly Gly Gly
145                 150                 155                 160

Ser Ala Gly Thr Ala Gly Thr Val Gln Met Asn Val Lys Gln Leu Tyr
                165                 170                 175

Lys Thr Ala Phe Ser Ser Thr Ser Ser Ser Ser Tyr Ala Ala Ala Leu
            180                 185                 190

Ser Asp Gly Tyr Ser Ala Tyr Lys Thr Leu Asn Ser Leu Tyr Ser Glu
        195                 200                 205

Ser Arg Ser Gly Val Gln Ser Ala Ile Ser Gln Thr Ala Asn Pro Ala
    210                 215                 220

Leu Ser Arg Ser Val Ser Arg Ser Gly Ile Glu Ser Gln Gly Arg Ser
225                 230                 235                 240

Ala Asp Ala Ser Gln Arg Ala Ala Glu Thr Ile Val Arg Asp Ser Gln
                245                 250                 255

Thr Leu Gly Asp Val Tyr Ser Arg Leu Gln Val Leu Asp Ser Leu Met
            260                 265                 270
```

```
Ser Thr Ile Val Ser Asn Pro Gln Ala Asn Gln Glu Glu Ile Met Gln
        275                 280                 285

Lys Leu Thr Ala Ser Ile Ser Lys Ala Pro Gln Phe Gly Tyr Pro Ala
    290                 295                 300

Val Gln Asn Ser Val Asp Ser Leu Gln Lys Phe Ala Ala Gln Leu Glu
305                 310                 315                 320

Arg Glu Phe Val Asp Gly Glu Arg Ser Leu Ala Glu Ser Gln Glu Asn
                325                 330                 335

Ala Phe Arg Lys Gln Pro Ala Phe Ile Gln Gln Val Leu Val Asn Ile
            340                 345                 350

Ala Ser Leu Phe Ser Gly Tyr Leu Ser
        355                 360


<210> 300
<211> 207
<212> PRT
<213> Chlamydia

<400> 300
Ser Ser Lys Ile Val Ser Leu Cys Glu Gly Ala Val Ala Asp Ala Arg
                5                   10                  15

Met Cys Lys Ala Glu Leu Ile Lys Lys Glu Ala Asp Ala Tyr Leu Phe
            20                  25                  30

Cys Glu Lys Ser Gly Ile Tyr Leu Thr Lys Lys Glu Gly Ile Leu Ile
        35                  40                  45

Pro Ser Ala Gly Ile Asp Glu Ser Asn Thr Asp Gln Pro Phe Val Leu
    50                  55                  60

Tyr Pro Lys Asp Ile Leu Gly Ser Cys Asn Arg Ile Gly Glu Trp Leu
65                  70                  75                  80

Arg Asn Tyr Phe Arg Val Lys Glu Leu Gly Val Ile Ile Thr Asp Ser
                85                  90                  95

His Thr Thr Pro Met Arg Arg Gly Val Leu Gly Ile Gly Leu Cys Trp
            100                 105                 110

Tyr Gly Phe Ser Pro Leu His Asn Tyr Ile Gly Ser Leu Asp Cys Phe
        115                 120                 125

Gly Arg Pro Leu Gln Met Thr Gln Ser Asn Leu Val Asp Ala Leu Ala
    130                 135                 140

Val Ala Ala Val Val Cys Met Gly Glu Gly Asn Glu Gln Thr Pro Leu
145                 150                 155                 160

Ala Val Ile Glu Gln Ala Pro Asn Met Val Tyr His Ser Tyr Pro Thr
                165                 170                 175
```

```
Ser Arg Glu Glu Tyr Cys Ser Leu Arg Ile Asp Glu Thr Glu Asp Leu
            180                 185                 190

Tyr Gly Pro Phe Leu Gln Ala Val Thr Trp Ser Gln Glu Lys Lys
        195                 200                 205


<210> 301
<211> 183
<212> PRT
<213> Chlamydia

<400> 301
Ile Pro Pro Ala Pro Arg Gly His Pro Gln Ile Glu Val Thr Phe Asp
                  5                  10                  15

Ile Asp Ala Asn Gly Ile Leu His Val Ser Ala Lys Asp Ala Ala Ser
             20                  25                  30

Gly Arg Glu Gln Lys Ile Arg Ile Glu Ala Ser Ser Gly Leu Lys Glu
         35                  40                  45

Asp Glu Ile Gln Gln Met Ile Arg Asp Ala Glu Leu His Lys Glu Glu
     50                  55                  60

Asp Lys Gln Arg Lys Glu Ala Ser Asp Val Lys Asn Glu Ala Asp Gly
 65                  70                  75                  80

Met Ile Phe Arg Ala Glu Lys Ala Val Lys Asp Tyr His Asp Lys Ile
                 85                  90                  95

Pro Ala Glu Leu Val Lys Glu Ile Glu Glu His Ile Glu Lys Val Arg
            100                 105                 110

Gln Ala Ile Lys Glu Asp Ala Ser Thr Thr Ala Ile Lys Ala Ala Ser
        115                 120                 125

Asp Glu Leu Ser Thr Arg Met Gln Lys Ile Gly Glu Ala Met Gln Ala
    130                 135                 140

Gln Ser Ala Ser Ala Ala Ala Ser Ser Ala Ala Asn Ala Gln Gly Gly
145                 150                 155                 160

Pro Asn Ile Asn Ser Glu Asp Leu Lys Lys His Ser Phe Ser Thr Arg
                165                 170                 175

Pro Pro Ala Gly Gly Ser Ala
            180


<210> 302
<211> 232
<212> PRT
<213> Chlamydia

<400> 302
```

```
Met Thr Lys His Gly Lys Arg Ile Arg Gly Ile Gln Glu Thr Tyr Asp
                5                  10                  15

Leu Ala Lys Ser Tyr Ser Leu Gly Glu Ala Ile Asp Ile Leu Lys Gln
            20                  25                  30

Cys Pro Thr Val Arg Phe Asp Gln Thr Val Asp Val Ser Val Lys Leu
        35                  40                  45

Gly Ile Asp Pro Arg Lys Ser Asp Gln Gln Ile Arg Gly Ser Val Ser
    50                  55                  60

Leu Pro His Gly Thr Gly Lys Val Leu Arg Ile Leu Val Phe Ala Ala
65                  70                  75                  80

Gly Asp Lys Ala Ala Glu Ala Ile Glu Ala Gly Ala Asp Phe Val Gly
                85                  90                  95

Ser Asp Asp Leu Val Glu Lys Ile Lys Gly Gly Trp Val Asp Phe Asp
            100                 105                 110

Val Ala Val Ala Thr Pro Asp Met Met Arg Glu Val Gly Lys Leu Gly
        115                 120                 125

Lys Val Leu Gly Pro Arg Asn Leu Met Pro Thr Pro Lys Ala Gly Thr
    130                 135                 140

Val Thr Thr Asp Val Val Lys Thr Ile Ala Glu Leu Arg Lys Gly Lys
145                 150                 155                 160

Ile Glu Phe Lys Ala Asp Arg Ala Gly Val Cys Asn Val Gly Val Ala
                165                 170                 175

Lys Leu Ser Phe Asp Ser Ala Gln Ile Lys Glu Asn Val Glu Ala Leu
            180                 185                 190

Cys Ala Ala Leu Val Lys Ala Lys Pro Ala Thr Ala Lys Gly Gln Tyr
        195                 200                 205

Leu Val Asn Phe Thr Ile Ser Ser Thr Met Gly Pro Gly Val Thr Val
    210                 215                 220

Asp Thr Arg Glu Leu Ile Ala Leu
225                 230


<210> 303
<211> 238
<212> PRT
<213> chlamydia

<400> 303
Ile Asn Ser Lys Leu Glu Thr Lys Asn Leu Ile Tyr Leu Lys Leu Lys
                5                  10                  15

Ile Lys Lys Ser Phe Lys Met Gly Asn Ser Gly Phe Tyr Leu Tyr Asn
            20                  25                  30
```

```
Thr Gln Asn Cys Val Phe Ala Asp Asn Ile Lys Val Gly Gln Met Thr
         35                  40                  45

Glu Pro Leu Lys Asp Gln Gln Ile Ile Leu Gly Thr Thr Ser Thr Pro
     50                  55                  60

Val Ala Ala Lys Met Thr Ala Ser Asp Gly Ile Ser Leu Thr Val Ser
 65                  70                  75                  80

Asn Asn Pro Ser Thr Asn Ala Ser Ile Thr Ile Gly Leu Asp Ala Glu
                 85                  90                  95

Lys Ala Tyr Gln Leu Ile Leu Glu Lys Leu Gly Asp Gln Ile Leu Gly
            100                 105                 110

Gly Ile Ala Asp Thr Ile Val Asp Ser Thr Val Gln Asp Ile Leu Asp
        115                 120                 125

Lys Ile Thr Thr Asp Pro Ser Leu Gly Leu Leu Lys Ala Phe Asn Asn
    130                 135                 140

Phe Pro Ile Thr Asn Lys Ile Gln Cys Asn Gly Leu Phe Thr Pro Arg
145                 150                 155                 160

Asn Ile Glu Thr Leu Leu Gly Gly Thr Glu Ile Gly Lys Phe Thr Val
                165                 170                 175

Thr Pro Lys Ser Ser Gly Ser Met Phe Leu Val Ser Ala Asp Ile Ile
            180                 185                 190

Ala Ser Arg Met Glu Gly Gly Val Val Leu Ala Leu Val Arg Glu Gly
        195                 200                 205

Asp Ser Lys Pro Tyr Ala Ile Ser Tyr Gly Tyr Ser Ser Gly Val Pro
    210                 215                 220

Asn Leu Cys Ser Leu Arg Thr Arg Ile Ile Asn Thr Gly Leu
225                 230                 235
```

<210> 304
<211> 54
<212> DNA
<213> Artificial Sequence

<220>
<223> PCR primer

<400> 304
gatatacata tgcatcacca tcaccatcac atgagtcaaa aaaataaaaa ctct 54

<210> 305
<211> 77
<212> DNA
<213> Artificial Sequence

<220>

<223> Retroviral vectors pBIB-KS1 modified to contain
Kosak translation initiation site and stop codons.

<400> 305
gatctgccgc caccatggaa ttcgatatcg gatccctgca gaagcttgag ctcgagcgcg 60
gccgctaatt agctgag 77

<210> 306
<211> 77
<212> DNA
<213> Artificial Sequence

<220>
<223> Retroviral vectors pBIB-KS1 modified to contain
Kosak translation initiation site and stop codons.

<400> 306
acggcggtgg taccttaagc tatagcctag ggacgtcttc gaactcgagc tcgcgccggc 60
gattaatcga ctcagct 77

<210> 307
<211> 78
<212> DNA
<213> Artificial Sequence

<220>
<223> Retroviral vectors pBIB-KS2 modified to contain
Kosak translation initiation site and stop codons.

<400> 307
gatctgccgc caccatggga attcgatatc ggatccctgc agaagcttga gctcgagcgc 60
ggccgctaat tagctgag 78

<210> 308
<211> 78
<212> DNA
<213> Artificial Sequence

<220>
<223> Retroviral vectors pBIB-KS2 modified to contain
Kosak translation initiation site and stop codons.

<400> 308
acggcggtgg tacccttaag ctatagccta gggacgtctt cgaactcgag ctcgcgccgg 60
cgattaatcg actcagct 78

<210> 309
<211> 79
<212> DNA
<213> Artificial Sequence

<220>
<223> Retroviral vectors pBIB-KS3 modified to contain
Kosak translation initiation site and stop codons.

<400> 309
gatctgccgc caccatgggg aattcgatat cggatccctg cagaagcttg agctcgagcg 60
cggccgctaa ttagctgag 79

<210> 310

<211> 79
<212> DNA
<213> Artificial Sequence

<220>
<223> Retroviral vectors pBIB-KS3 modified to contain
Kosak translation initiation site and stop codons.

<400> 310
acggcggtgg tacccttaa gctatagcct agggacgtct tcgaactcga gctcgcgccg 60
gcgattaatc gactcagct 79